```
=> file reg
FILE 'REGISTRY'
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=> d his

     FILE 'HCAPLUS'
L1       25917 S TAKEDA ?/AU OR TAKANOBU ?/AU
L2       88783 S WATANABE ?/AU OR OSAMU ?/AU
L3         989 S HIRAHARA ?/AU OR KAZUHIRO ?/AU
L4        5632 S TAKEMURA ?/AU OR KATSUYA ?/AU
L5         207 S KUSAKI ?/AU OR WATARU ?/AU
L6       12138 S SEKI ?/AU OR AKIHIRO ?/AU
L7           1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6
               SEL L7 1 RN

     FILE 'REGISTRY'
L8           5 S E1-E5
L9           5 S L8 AND PMS/CI
               SEL L9 1,3,4 RN
L10          3 S E6-E8

     FILE 'HCAPLUS'
L11          4 S L10

     FILE 'LREGISTRY'
L12            STR
L13            STR
L14            STR

     FILE 'REGISTRY'
L15            SCR 2043
L16         22 S L12 AND L13 AND L15
L17       4919 S L12 AND L13 AND L15 FUL
               SAV L17 LEE512/A

     FILE 'LREGISTRY'
L18            STR

     FILE 'REGISTRY'
L19         50 S L12 AND L18 AND L15 SSS SAM SUB=L17

     FILE 'LREGISTRY'
L20            STR L18

     FILE 'REGISTRY'
L21          6 S L12 AND L20 AND L15 SSS SAM SUB=L17
L22         62 S L12 AND L20 AND L15 SSS FUL SUB=L17
               SAV L22 LEE512A/A
```
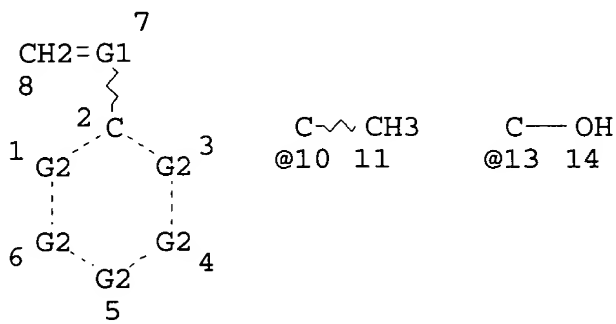
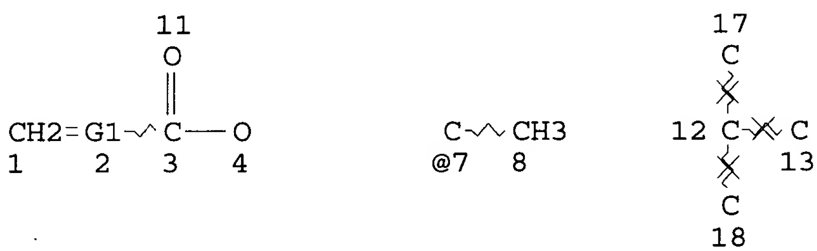

```
L23          1168 S L17 NOT 3<NC
L24            47 S L23 AND L22

     FILE 'HCAPLUS'
L25            40 S L24

     FILE 'REGISTRY'
L26            16 S L22 AND 2/NC

     FILE 'HCAPLUS'
L27            42 S L22
L28            30 S L26
L29        144413 S PHOTORESIST? OR RESIST OR RESISTS OR PHOTOMASK? OR MASK
L30            40 S (L25 OR L27 OR L28) AND L29
L31            29 S L28 AND L29
L32            39 S L25 AND L29
L33            40 S L27 AND L29
L34            26 S L31 NOT L11
L35            10 S (L32 OR L33) NOT (L11 OR L34)
L36            15 S L34 AND 1907-2000/PY
L37            19 S L34 AND 1907-2001/PY
L38             6 S L35 AND 1907-2001/PY

     FILE 'REGISTRY'
L39             0 S L12 AND L14 SSS SAM SUB=L17
L40             1 S L12 AND L14 SSS FUL SUB=L17
                  SAV L40 LEE512B/A

     FILE 'CAOLD'
L41             0 S L40

     FILE 'ZCAPLUS'
L42             1 S L40

     FILE 'REGISTRY'
L43               STR
L44             0 S L12 AND L43 SSS SAM SUB=L17
L45             2 S L12 AND L43 SSS FUL SUB=L17
                  SAV L45 LEE512B/A

     FILE 'CAOLD'
L46             0 S L45

     FILE 'ZCAPLUS'
L47             2 S L45

     FILE 'REGISTRY'

=> d l45 que stat
L12               STR
```



VAR G1=CH/10
VAR G2=CH/13
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE
L13 STR



VAR G1=CH/7
NODE ATTRIBUTES:
CONNECT IS E2 RC AT 4
CONNECT IS E4 RC AT 12
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE
L15 SCR 2043
L17 4919 SEA FILE=REGISTRY SSS FUL L12 AND L13 AND L15
L43 STR

```
C══C~Cb~O※G1※O~Cb~C══C          A @12
1   2  3  4  5   6  7  8  9
```

```
REP G1=(1-10) 12
NODE ATTRIBUTES:
NSPEC   IS RC     AT  12
DEFAULT MLEVEL IS ATOM
GGCAT   IS UNS   AT   3
GGCAT   IS UNS   AT   7
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  10

STEREO ATTRIBUTES: NONE
L45           2 SEA FILE=REGISTRY SUB=L17 SSS FUL L12 AND L43

100.0% PROCESSED   2485 ITERATIONS                        2 ANSWERS
SEARCH TIME: 00.00.02


=> file zcaplus
FILE 'ZCAPLUS'
```

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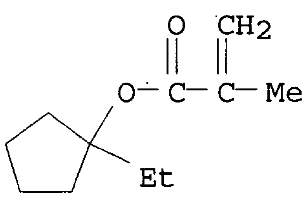
```
=> d l47 1-2 ibib abs hitstr hitrn

L47  ANSWER 1 OF 2  ZCAPLUS  COPYRIGHT 2002 ACS
ACCESSION NUMBER:        2002:253296  ZCAPLUS
DOCUMENT NUMBER:         136:301776
TITLE:                   Chemical amplification positive working resist
                         material
INVENTOR(S):             Hatakeyama, Jun
PATENT ASSIGNEE(S):      Shin-Etsu Chemical Industry Co., Ltd., Japan
SOURCE:                  Jpn. Kokai Tokkyo Koho, 37 pp.
                         CODEN: JKXXAF
DOCUMENT TYPE:           Patent
LANGUAGE:                Japanese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:
```

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002099090	A2	20020405	JP 2001-210657	20010711

US 2002042017 A1 20020411 US 2001-907653 20010719
PRIORITY APPLN. INFO.: JP 2000-218490 A 20000719
AB The chem. amplification pos. working resist material used for electron beam and soft x-ray exposure comprises .gtoreq.1 hardly alk. sol. resin having .gtoreq.2 acid unstable group replacing H of a phenolic OH or carboxy group of an alk. sol. base polymer, wherein one of the acid unstable group is acetal or ketal group and the other is a tert hydrocarbon group. The chem. amplification pos. working resist material showed excellent stability in vacuum after the exposure.
IT **406909-43-1**
(chem. amplification pos. working resist material)
RN 406909-43-1 ZCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 1,1'-[1,4-butanediylbis(oxyethylideneoxy)]bis[4-ethenylbenzene] and 4-ethenylphenol (9CI) (CA INDEX NAME)

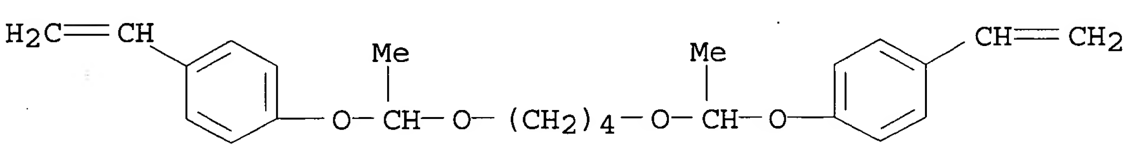
CM 1

CRN 266308-58-1
CMF C11 H18 O2



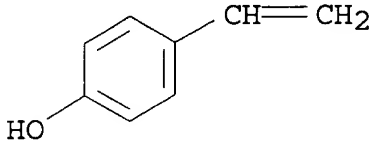
CM 2

CRN 215319-92-9
CMF C24 H30 O4



CM 3

CRN 2628-17-3
CMF C8 H8 O



IT **406909-43-1**
(chem. amplification pos. working resist material)

L47 ANSWER 2 OF 2 ZCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1986:130787 ZCAPLUS
DOCUMENT NUMBER: 104:130787
TITLE: High-refractive index polymers for lenses
INVENTOR(S): Ueno, Shoji; Ninomiya, Takao
PATENT ASSIGNEE(S): Sumitomo Chemical Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60179406	A2	19850913	JP 1984-34945	19840224

AB Title polymers of excellent transparency, which can be cut without cracking, are composed of (co)polymers of 10-100% (CH2:CMeC6H4O)2Z (Z = CO, SO, COZ1CO, SO2Z1SO2; Z1 = C1-18 hydrocarbon, optionally contg. O) and 0-90% monomers, whose n as homopolymers is .gtoreq.1.5. Thus, 50 parts (m-CH2:CMeC6H4O)2CO and 50 parts styrene were copolymd. in a mold at 30-80.degree. in presence of 1.0 part di-iso-Pr peroxydicarbonate and then polymd. at 100.degree.. The copolymer had n 1.61, transmittance 90%, and could be cut without cracking vs. 1.59, 89%, and cracking, resp., for polystyrene.

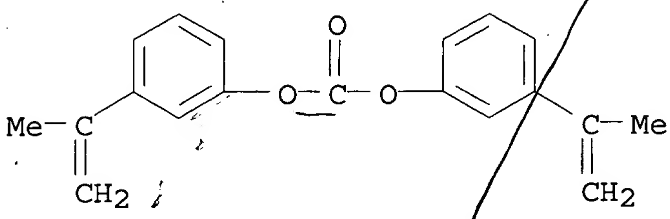
IT **101181-17-3P**
(prepn. of crack-resistant, for lenses)

RN 101181-17-3 ZCAPLUS

CN 2-Propenoic acid, 2-methyl-, (1-methylethylidene)bis[(2,6-dibromo-4,1-phenylene)oxy-2,1-ethanediyl] ester, polymer with bis[3-(1-methylethenyl)phenyl] carbonate and ethenylbenzene (9CI) (CA INDEX NAME)

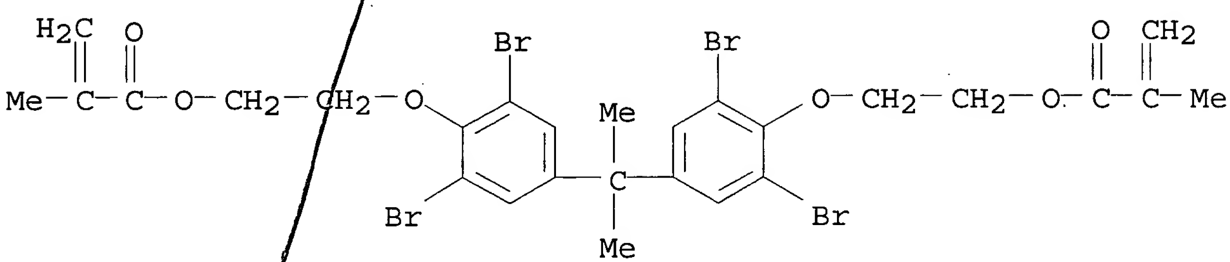
CM 1

CRN 101128-62-5
CMF C19 H18 O3



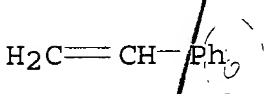
CM 2

CRN 67006-39-7
CMF C27 H28 Br4 O6



CM 3

CRN 100-42-5
CMF C8 H8



IT **101181-17-3P**
(prepn. of crack-resistant, for lenses)

```
=> file reg
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=> d his


     FILE 'HCAPLUS'
L1        25917 S TAKEDA ?/AU OR TAKANOBU ?/AU
L2        88783 S WATANABE ?/AU OR OSAMU ?/AU
L3          989 S HIRAHARA ?/AU OR KAZUHIRO ?/AU
L4         5632 S TAKEMURA ?/AU OR KATSUYA ?/AU
L5          207 S KUSAKI ?/AU OR WATARU ?/AU
L6        12138 S SEKI ?/AU OR AKIHIRO ?/AU
L7            1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6
                SEL L7 1 RN

     FILE 'REGISTRY'
L8            5 S E1-E5
L9            5 S L8 AND PMS/CI
                SEL L9 1,3,4 RN
L10           3 S E6-E8

     FILE 'HCAPLUS'
L11           4 S L10

     FILE 'LREGISTRY'
L12             STR
L13             STR
L14             STR

     FILE 'REGISTRY'
L15             SCR 2043
L16          22 S L12 AND L13 AND L15
L17        4919 S L12 AND L13 AND L15 FUL
                SAV L17 LEE512/A

     FILE 'LREGISTRY'
L18             STR

     FILE 'REGISTRY'
L19          50 S L12 AND L18 AND L15 SSS SAM SUB=L17

     FILE 'LREGISTRY'
L20             STR L18

     FILE 'REGISTRY'
L21           6 S L12 AND L20 AND L15 SSS SAM SUB=L17
L22          62 S L12 AND L20 AND L15 SSS FUL SUB=L17
```

```
               SAV L22 LEE512A/A
L23        1168 S L17 NOT 3<NC
L24          47 S L23 AND L22

     FILE 'HCAPLUS'
L25          40 S L24

     FILE 'REGISTRY'
L26          16 S L22 AND 2/NC

     FILE 'HCAPLUS'
L27          42 S L22
L28          30 S L26
L29      144413 S PHOTORESIST? OR RESIST OR RESISTS OR PHOTOMASK? OR MASK
L30          40 S (L25 OR L27 OR L28) AND L29
L31          29 S L28 AND L29
L32          39 S L25 AND L29
L33          40 S L27 AND L29
L34          26 S L31 NOT L11
L35          10 S (L32 OR L33) NOT (L11 OR L34)
L36          15 S L34 AND 1907-2000/PY
L37          19 S L34 AND 1907-2001/PY
L38           6 S L35 AND 1907-2001/PY


     FILE 'REGISTRY'
L39           0 S L12 AND L14 SSS SAM SUB=L17
L40           1 S L12 AND L14 SSS FUL SUB=L17
               SAV L40 LEE512B/A

     FILE 'CAOLD'
L41           0 S L40

     FILE 'ZCAPLUS'
L42           1 S L40

     FILE 'REGISTRY'
L43             STR
L44           0 S L12 AND L43 SSS SAM SUB=L17
L45           2 S L12 AND L43 SSS FUL SUB=L17
               SAV L45 LEE512B/A

     FILE 'CAOLD'
L46           0 S L45

     FILE 'ZCAPLUS'
L47           2 S L45


     FILE 'LREGISTRY'
L48             STR
```

```
     FILE 'REGISTRY'
L49          50 S L12 AND L48 AND L13 SSS SAM SUB=L17
L50             STR L13
L51           7 S L12 AND L48 AND L50 SSS SAM SUB=L17
L52             STR L48
L53           1 S L12 AND L52 AND L50 SSS SAM SUB=L17
L54             STR L52
L55           0 S L12 AND L54 AND L50 SSS SAM SUB=L17
L56          36 S L12 AND L54 AND L50 SSS FUL SUB=L17
                SAV L56 LEE512C/A
L57          11 S L56 AND L23
L58        1152 S L23 NOT L26

     FILE 'HCAPLUS'
L59           5 S L57
L60          22 S L56
L61        1783 S L58
L62           4 S L59 AND L29
L63           5 S L60 AND L29
L64         283 S L61 AND L29
L65           5 S L62 OR L63
L66         167 S L64 AND 1907-2000/PY
L67         123 S L66 AND P/DT

     FILE 'REGISTRY'
L68        2461 S 585-07-9/CRN
L69        4263 S L17 NOT L68
L70         753 S L69 AND 3/NC

     FILE 'HCAPLUS'
L71           3 S L65 AND 1907-2001/PY
L72         805 S L70
L73         158 S L72 AND L29
L74          74 S L73 AND 1907-2000/PY
L75          70 S L74 AND P/DT
L76          69 S L75 NOT L71

     FILE 'REGISTRY'
L77        1537 S 1663-39-4/CRN
L78        3918 S L69 NOT L77
L79         669 S L78 AND 3/NC

     FILE 'HCAPLUS'
L80         653 S L79
L81          73 S L80 AND L29
L82          31 S L81 AND 1907-2000/PY
L83          31 S L82 AND P/DT
                SEL L83 1-31 HIT RN

     FILE 'REGISTRY'
L84          57 S E9-E67
L85          50 S L84 AND 3/ELC.SUB
```

```
                SEL L85 7,19,22,23,42 RN
L86           5 S E68-E72

     FILE 'HCAPLUS'
L87           3 S L86
L88           3 S L87 AND L29
L89           6 S L71 OR L88
L90           6 S L89 AND 1907-2001/PY

     FILE 'REGISTRY'

=> d l56 que stat
L12                STR
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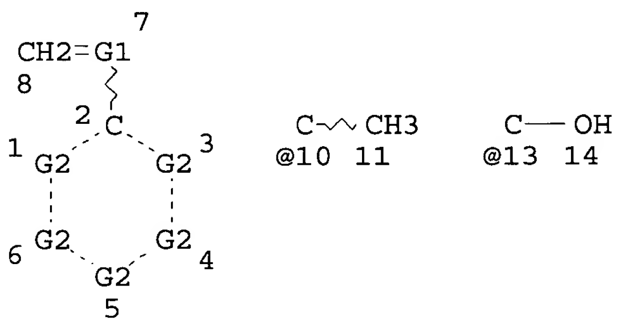

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VAR G1=CH/10
VAR G2=CH/13
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  12

STEREO ATTRIBUTES: NONE
L13                STR
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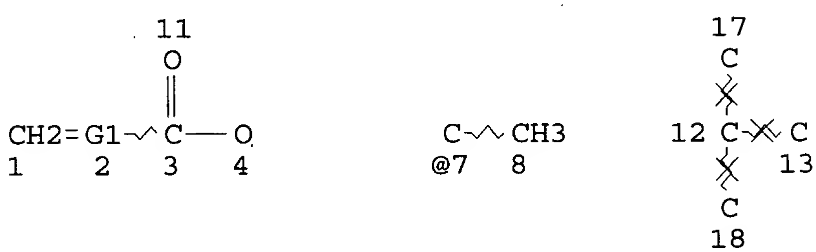
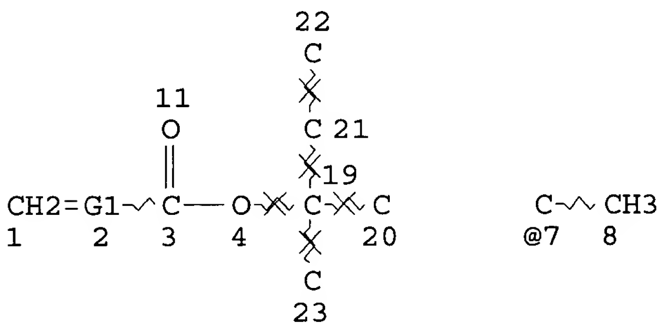


```
VAR G1=CH/7
NODE ATTRIBUTES:
CONNECT IS E2   RC AT   4
CONNECT IS E4   RC AT  12
DEFAULT MLEVEL IS ATOM
```

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 11

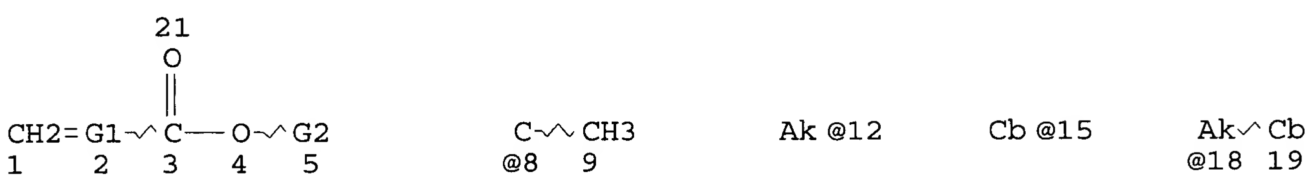
STEREO ATTRIBUTES: NONE
L15 SCR 2043
L17 4919 SEA FILE=REGISTRY SSS FUL L12 AND L13 AND L15
L50 STR



VAR G1=CH/7
NODE ATTRIBUTES:
NSPEC IS RC AT 19
NSPEC IS RC AT 20
NSPEC IS RC AT 21
NSPEC IS RC AT 22
NSPEC IS RC AT 23
CONNECT IS E2 RC AT 4
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 12

STEREO ATTRIBUTES: NONE
L54 STR



VAR G1=CH/8
VAR G2=12/15/18
NODE ATTRIBUTES:
CONNECT IS E1 RC AT 12
CONNECT IS E1 RC AT 15
CONNECT IS E2 RC AT 18

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CONNECT IS E1  RC AT  19
DEFAULT MLEVEL IS ATOM
GGCAT   IS LIN  SAT  AT  12
GGCAT   IS MCY  SAT  AT  15
GGCAT   IS LIN  SAT  AT  18
GGCAT   IS SAT  AT  19
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  12

STEREO ATTRIBUTES: NONE
L56          36 SEA FILE=REGISTRY SUB=L17 SSS FUL L12 AND L54 AND L50

100.0% PROCESSED   1611 ITERATIONS                          36 ANSWERS
SEARCH TIME: 00.00.03


=> file hcaplus
FILE 'HCAPLUS'
```

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=> d l90 1-6 cbib abs hitstr hitind

L90 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2002 ACS

2001:738604 Document No. 135:310914 Positive-working radiation-sensitive **resist** resin composition for electroplating in electric parts fabrication and method for electroplating using same. Ota, Masaru; Ito, Atsushi; Iwanaga, Shinichiro (JSR Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001281862 A2 **20011010**, 14 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-90783 20000329.

AB The the title pos.-working radiation-sensitive **resist** resin compn. contains a polymer generating acidic groups by reacting with an acid and a radiation-sensitive acid-generating compd. The compn., which contains the polymer having groups generating acidic groups and the acid generating compd., forms thick precisely patterned plating layers and is suitable for manufg. elec. parts such as bumps on elec. component to be mounted on LSI substrate and for forming wirings on a substrate.

IT **366464-23-5P 366464-24-6P 366464-25-7P 366464-28-0P**
(polymer in pos.-working radiation sensitive **resist** resin compn.)

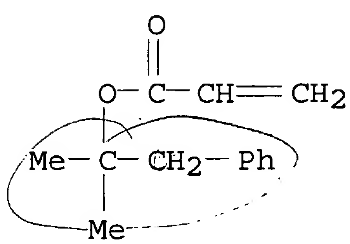
RN 366464-23-5 HCAPLUS

CN 2-Propenoic acid, 1,1-dimethyl-2-phenylethyl ester, polymer with 4-(1-methylethenyl)phenol and methyl 2-propenoate (9CI) (CA INDEX

NAME)

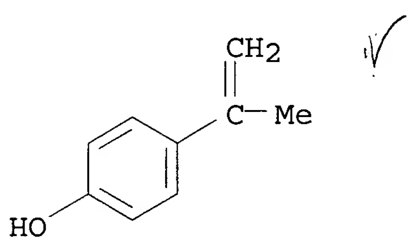
CM 1

CRN 324767-19-3
CMF C13 H16 O2



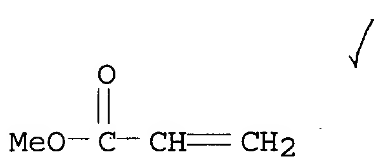
CM 2

CRN 4286-23-1
CMF C9 H10 O



CM 3

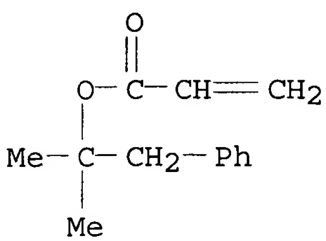
CRN 96-33-3
CMF C4 H6 O2



RN 366464-24-6 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-2-phenylethyl ester, polymer with ethyl 2-propenoate and 4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

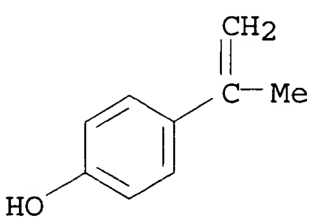
CM 1

CRN 324767-19-3
CMF C13 H16 O2



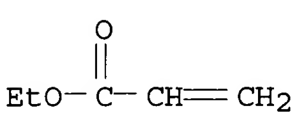
CM 2

CRN 4286-23-1
CMF C9 H10 O



CM 3

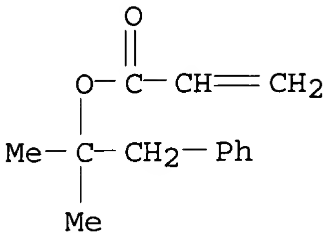
CRN 140-88-5
CMF C5 H8 O2



RN 366464-25-7 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-2-phenylethyl ester, polymer with ethyl 2-propenoate, 2-hydroxypropyl 2-propenoate and 4-(1-methylethenyl)phenol (9CI) (CA INDEX NAME)

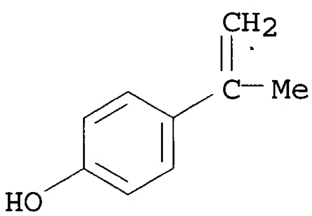
CM 1

CRN 324767-19-3
CMF C13 H16 O2



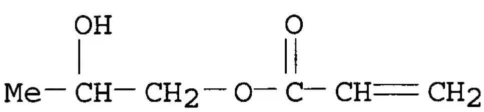
CM 2

CRN 4286-23-1
CMF C9 H10 O



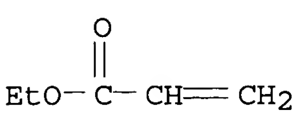
CM 3

CRN 999-61-1
CMF C6 H10 O3



CM 4

CRN 140-88-5
CMF C5 H8 O2

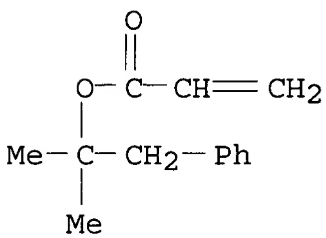


RN 366464-28-0 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-2-phenylethyl ester, polymer with 2-hydroxypropyl 2-propenoate, 4-(1-methylethenyl)phenol and methyl

2-propenoate (9CI) (CA INDEX NAME)

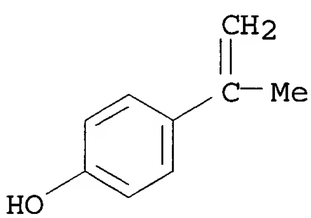
CM 1

CRN 324767-19-3
CMF C13 H16 O2



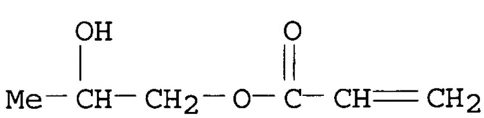
CM 2

CRN 4286-23-1
CMF C9 H10 O



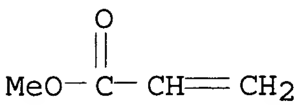
CM 3

CRN 999-61-1
CMF C6 H10 O3



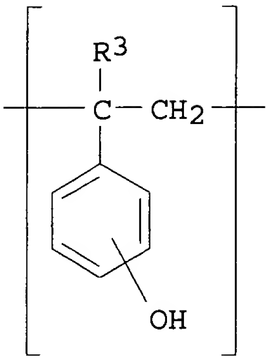
CM 4

CRN 96-33-3
CMF C4 H6 O2



IC ICM G03F007-039
ICS C08J005-18; C08L033-08; C08L033-10; C08L101-02; C25D005-02; C25D007-12; G03F007-004; G03F007-11; G03F007-38; G03F007-40; G03F007-42
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 56, 72, 76
ST pos working radiation sensitive **resist** resin compn electroplating elec; circuit working radiation sensitive **resist** resin compn electroplating elec
IT Coating process
(plating; pos.-working radiation sensitive **resist** resin compn. for electroplating used in elec. circuit formation and method for electroplating using same)
IT **Resists**
Semiconductor device fabrication
(pos.-working radiation sensitive **resist** resin compn. for electroplating used in elec. circuit formation and method for electroplating using same)
IT 366464-22-4P **366464-23-5P** **366464-24-6P** **366464-25-7P** 366464-26-8P 366464-27-9P **366464-28-0P**
(polymer in pos.-working radiation sensitive **resist** resin compn.)
IT 135668-77-8
(radiation-sensitive acid-generating compd. in pos.-working radiation sensitive **resist** resin compn.)

L90 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2002 ACS
2001:451196 Document No. 135:68548 Radiation-sensitive **chemically amplified resist** composition containing specific copolymer. Nishimura, Yukio; Kobayashi, Eiichi; Shiotani, Takeo; Shimokawa, Tsutomu (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001166474 A2 20010622 18 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-344911 19991203.
GI



I

AB The title compn. contains a radiation-sensitive acid generator and a copolymer having repeating unit [-C(R1)(COOR2)-CH2-] (R1 = H, methyl; R2 = C>10 alicyclic) and of repeating unit I (R3 = H, methyl) with .ltoreq.50 % content. The compn., which contains the copolymer having the aforementioned repeating units, shows the decreased effect of the post exposure delay(PED) on the pattern profiles.

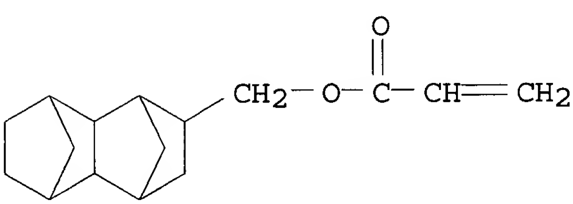
IT **345631-89-2P 345631-90-5P**
(radiation active **chem. amplified resist** compn. contg. specific copolymer)

RN 345631-89-2 HCAPLUS

CN 2-Propenoic acid, 1,1,4,4-tetramethyl-1,4-butanediyl ester, polymer with [decahydro-6(or 7)-hydroxy-1,4:5,8-dimethanonaphthalen-2-yl]methyl 2-propenoate, 1-(1,1-dimethylethoxy)-4-ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

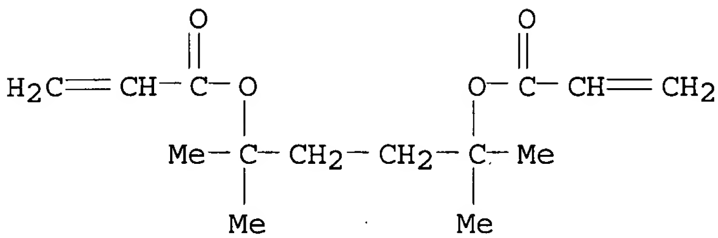
CRN 345631-87-0
CMF C16 H22 O3
CCI IDS



D1— OH

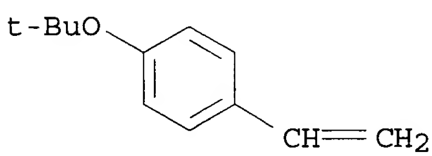
CM 2

CRN 188837-15-2
CMF C14 H22 O4



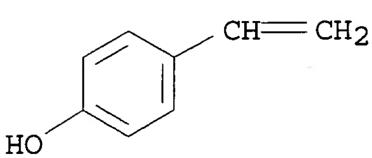
CM 3

CRN 95418-58-9
CMF C12 H16 O



CM 4

CRN 2628-17-3
CMF C8 H8 O

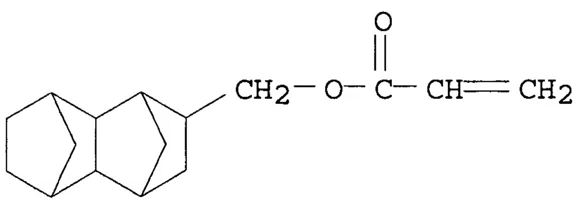


RN 345631-90-5 HCAPLUS
CN 2-Propenoic acid, [decahydro-6(or 7)-hydroxy-1,4:5,8-dimethanonaphthalen-2-yl]methyl ester, polymer with 4-ethenylphenol and 2-methyltricyclo[3.3.1.13,7]dec-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 345631-87-0
CMF C16 H22 O3

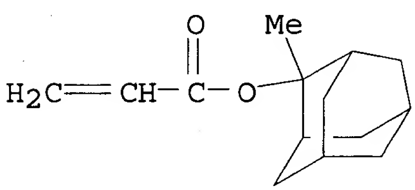
CCI IDS



D1—OH

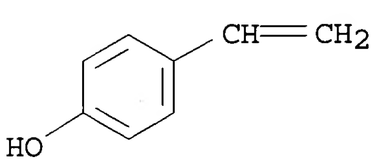
CM 2

CRN 249562-06-9
CMF C14 H20 O2



CM 3

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-038
ICS C08L033-06; G03F007-004; H01L021-027; C08L025-18
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST radiation active amplified **resist** compn copolymer
IT Light-sensitive materials
Photoresists
(radiation active **chem. amplified**

resist compn. contg. specific copolymer)
IT 200808-68-0P, 4-Hydroxystyrene-styrene-tert-butyl acrylate copolymer
345348-83-6P 345348-84-7P 345348-85-8P 345631-88-1P
345631-89-2P 345631-90-5P 345631-91-6P
(radiation active **chem. amplified**
resist compn. contg. specific copolymer)

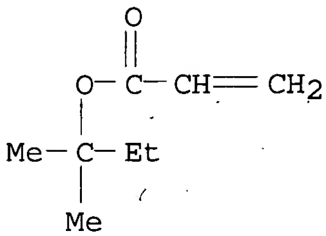
L90 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2002 ACS
2000:600540 Document No. 133:215450 Positive-working photosensitive composition containing silicone. Sakaguchi, Shinji (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000235264 A2 20000829, 49 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-143614 19990524. PRIORITY: JP 1998-354878 19981214.
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to a pos.-working photosensitive compn. contg.; (a) a water-insol. and alkali-sol. polymer having repeating unit I or II(X = -C=O, H, hydrocarbon, etc.; R'-''''' = OH, alkyl, cycloaralkyl, etc.; R0 = H, halo, hydrocarbon; r, s, t = 1-3 integer; u, v = 1, 2; l, m, n, q .gtoreq.0 integer; p>0 integer; R.alpha.-.gamma. = single bond, -(CH2)k-(Z.alpha.)-R.delta.; Z.alpha. = -COC-, -O-, -N(R.epsilon.)-; R.delta. = single bond, C1-12 alkylene; arylene, aralkyl; R.epsilon. = H, C1-10 alkyl; k = .gtoreq.0 integer; j = 0, 1); (b) a compd. generating an acid upon irradn. of actinic or radioactive ray; and (c) an polymer, which increases the soly. towards an alkali developer at the presence of an acid, having repeating unit -(C(R1)(R2)-C(R3)(R4-(G)f))a-, -(C(R5)(R6)-C(R7)(R8-(Q)g))b- (R1-3,5-7,9-11 = H, halo, alkyl, etc.; R4,9 =single bond, 2-5 valent specific aryl, amide group) and -(C(R9)(R10)-C(R11)(R12))c- and acid-sensitive group, and (d) a nitrogen contg. cyclic compd. and/or an aliph. amine having a carboxylic substituent. The compn. provides the high sensitivity and the high resoln. and is suitable for use in a semiconductor device prodn.
IT **289706-87-2**
(pos.-working photosensitive compn.)
RN 289706-87-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, phenylmethyl ester, polymer with 1,1-dimethylpropyl 2-propenoate and 4-ethenylphenol (9CI) (CA INDEX NAME)

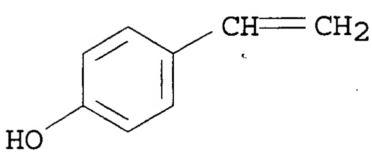
CM 1

CRN 7383-26-8
CMF C8 H14 O2



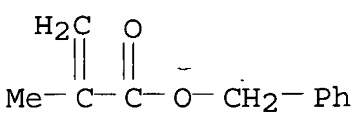
CM 2

CRN 2628-17-3
CMF C8 H8 O



CM 3

CRN 2495-37-6
CMF C11 H12 O2

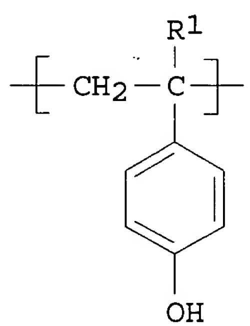


IC ICM G03F007-075
ICS C08L083-06; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
IT **Photoresists**
(pos.-working photosensitive compn. contg. silicone)
IT 109-12-6, 2-Aminopyrimidine 119-65-3, Isoquinoline 260-94-6, Acridine 504-29-0, 2-Aminopyridine 534-85-0, 2-Aminodiphenylamine 580-20-1, 7-Hydroxyquinoline 607-31-8, 4-Methoxyquinoline 611-64-3, 9-Methylacridine 620-08-6, 4-Methoxypyridine 670-95-1, 4-Phenylimidazole 822-36-6, 4-Methylimidazole 18123-20-1, 4-Hydroxyacridine 23687-25-4, 4-Aminoisoquinoline 31401-45-3, 4-Dimethylaminopyrimidine 36631-19-3, Triphenyl imidazole 177034-67-2 287925-54-6 287925-56-8 288620-13-3 288620-15-5 289706-73-6 289706-75-8

289706-76-9 289706-79-2 289706-80-5 289706-81-6 289706-82-7
289706-83-8 289706-84-9 289706-85-0 289706-86-1
289706-87-2 289706-88-3 289706-90-7
(pos.-working photosensitive compn.)

L90 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2002 ACS
2000:143365 Document No. 132:187654 Radiation-sensitive **resist** composition. Kobayashi, Eiichi; Ikemura, Toshiaki; Nishimura, Yukio; Iwanaga, Shinichiro (JSR Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000066404 A2 **20000303**, 22 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-258876 19980911. PRIORITY: JP 1998-164700 19980612.

GI



I

AB The radiation-sensitive **resist** compn. contains a radiation-sensitive acid generator and a resin of structure repeating unit I (R1 = H, methyl) and (-CH2-C(R2)(-COOC(CH3)(CH3)-CH2-COCH3)-) (R2 = Me, H). The **resist** compn. shows the excellent sensitivity towards far-UV light and provides the superior resoln.

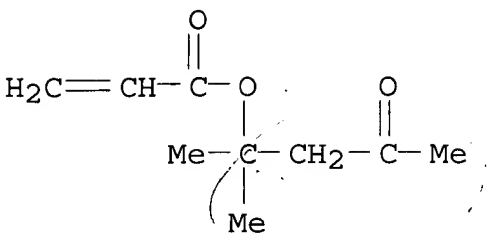
IT **259196-63-9P 259196-65-1P 259196-69-5DP,**
1-ethoxypropyl ether
(radiation-sensitive **resist** compn.)

RN 259196-63-9 HCAPLUS

CN 2-Propenoic acid, 1,1-dimethyl-3-oxobutyl ester, polymer with 4-ethenylphenol and octahydro-4,7-methano-1H-inden-5-yl 2-propenoate (9CI) (CA INDEX NAME)

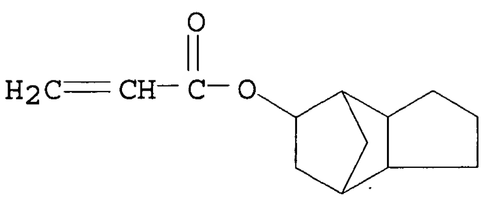
CM 1

CRN 155844-84-1
CMF C9 H14 O3



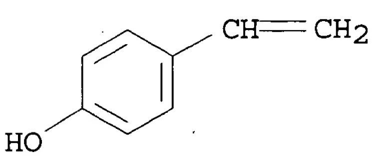
CM 2

CRN 7398-56-3
CMF C13 H18 O2



CM 3

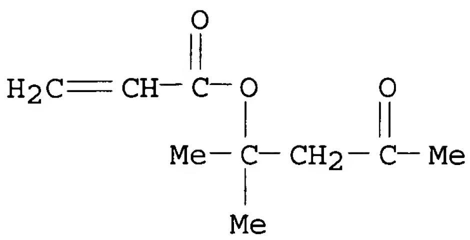
CRN 2628-17-3
CMF C8 H8 O



RN 259196-65-1 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-3-oxobutyl ester, polymer with 4-(1-methylethenyl)phenol and rel-(1R,2R,4R)-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

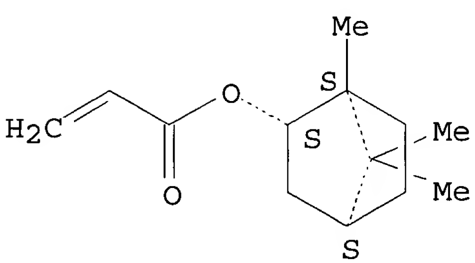
CRN 155844-84-1
CMF C9 H14 O3



CM 2

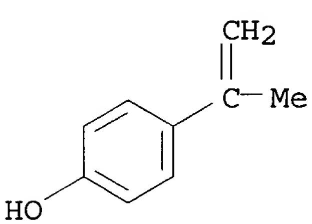
CRN 5888-33-5
CMF C13 H20 O2

Relative stereochemistry.



CM 3

CRN 4286-23-1
CMF C9 H10 O

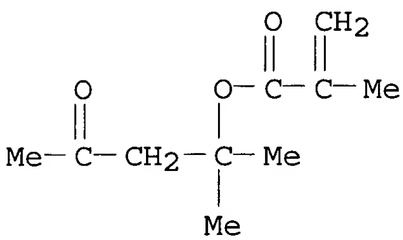


RN 259196-69-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-3-oxobutyl ester, polymer with 4-ethenylphenol and (octahydro-4,7-methano-1H-indene-5,?-diyl)bis(methylene) di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

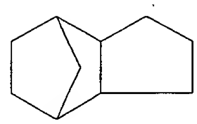
CRN 93940-09-1

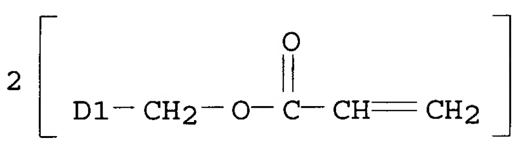
CMF C10 H16 O3



CM 2

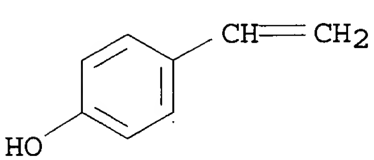
CRN 42594-17-2
CMF C18 H24 O4
CCI IDS





CM 3

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST radiation sensitive **resist** compn far UV

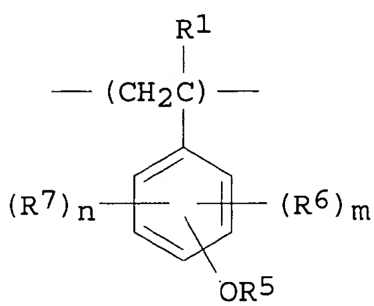
IT **Resists**
(radiation-sensitive; radiation-sensitive **resist** compn.)

IT 133710-62-0 138529-81-4, Bis(cyclohexylsulfonyl)diazomethane 144317-44-2 185195-30-6, Bis(4-tert-butylphenyl)iodonium 10-camphorsulfonate
(acid generating agent of radiation-sensitive **resist** compn.)

IT 24979-70-2DP, ethoxyalkyl ethers 24979-74-6DP, 1-(cyclohexyloxy)ethyl ether 147625-42-1DP, 1-ethoxyethyl ether 159296-87-4DP, 1-ethoxyethyl ether **259196-63-9P** 259196-64-0DP, 1-ethoxyethyl ether 259196-64-0P **259196-65-1P** 259196-66-2P 259196-67-3P 259196-68-4P **259196-69-5DP**, 1-ethoxypropyl ether **259196-69-5DP**, 1-ethoxypropyl ether 259214-34-1DP, 1-ethoxyethyl ether
(radiation-sensitive **resist** compn.)

L90 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2002 ACS
1999:658546 Document No. 131:293308 Positively working **photoresist** composition containing acid-generating compound. Aogo, Toshiaki; Mizutani, Kazuyoshi; Tan, Shiro (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11282163 A2 **19991015** Heisei, 53 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-79458 19980326.

GI



I

AB The material contains a compd. generating acid under exposure to active lights or radioactive rays and a resin with repeating units I and [CH2C(R1)CO2CR2R3R4] [R1 = H, Me; R2, R3 = H, (substituted) alkyl, (substituted) aryl; R4 = cycloalkyl, alkenyl, alkynyl, aralkyl, aryl, where they may be substituted; R5 = H, CR8R9R10, CR11R12OR13; R8-12 = H, (substituted) alkyl, (substituted) cycloalkyl, (substituted) alkenyl, (substituted) alkynyl, (substituted) aryl; R13 = alkyl, cycloalkyl, aryl; R6, R7 = halo, OH, (substituted) alkyl, (substituted) aryl, (substituted) aralkyl, (substituted) alkoxy, (substituted) acyl, (substituted) acyloxy; two of each R2-4, R8-10, and R11-13 may form a ring; m, n = 0-3]. The material shows high sensitivity and improved resolving power and

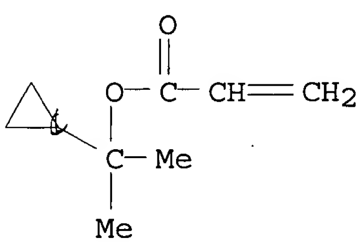
improved pattern profile because of no change of pattern shapes and sensitivity under exposure.

IT **246157-34-6 246157-36-8 246157-38-0**
246157-40-4 246157-45-9
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)

RN 246157-34-6 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

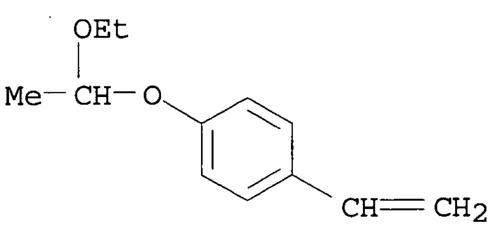
CM 1

CRN 246157-33-5
CMF C9 H14 O2



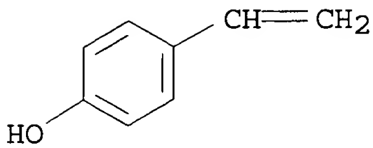
CM 2

CRN 157057-20-0
CMF C12 H16 O2



CM 3

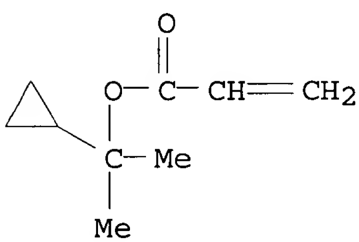
CRN 2628-17-3
CMF C8 H8 O



RN 246157-36-8 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 1-ethenyl-4-[1-(2-methylpropoxy)ethoxy]benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

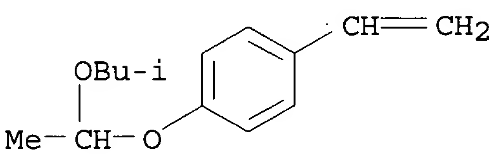
CM 1

CRN 246157-33-5
CMF C9 H14 O2



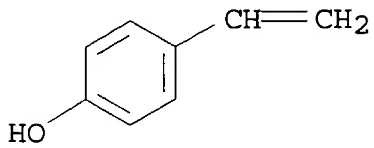
CM 2

CRN 192314-53-7
CMF C14 H20 O2



CM 3

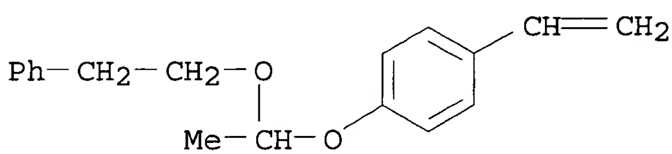
CRN 2628-17-3
CMF C8 H8 O



RN 246157-38-0 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 4-ethenylphenol and 1-ethenyl-4-[1-(2-phenylethoxy)ethoxy]benzene (9CI) (CA INDEX NAME)

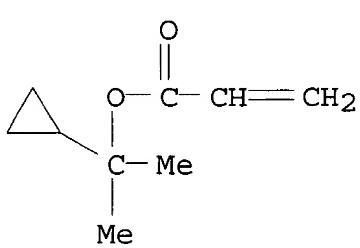
CM 1

CRN 246157-37-9
CMF C18 H20 O2



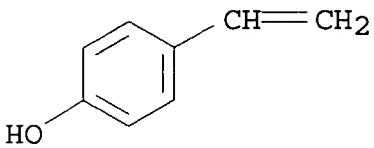
CM 2

CRN 246157-33-5
CMF C9 H14 O2



CM 3

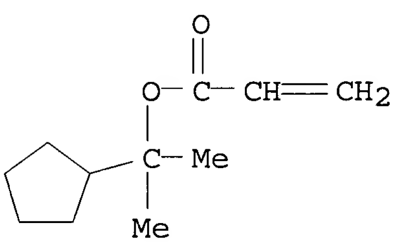
CRN 2628-17-3
CMF C8 H8 O



RN 246157-40-4 HCAPLUS
CN 2-Propenoic acid, 1-cyclopentyl-1-methylethyl ester, polymer with 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

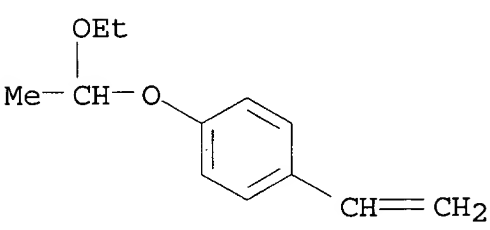
CM 1

CRN 246157-39-1
CMF C11 H18 O2



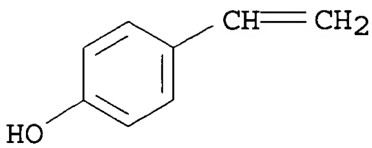
CM 2

CRN 157057-20-0
CMF C12 H16 O2



CM 3

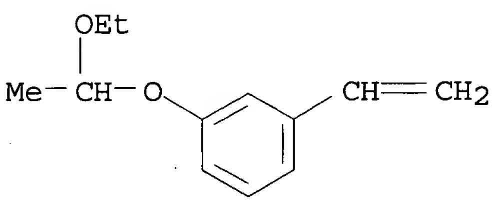
CRN 2628-17-3
CMF C8 H8 O



RN 246157-45-9 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 1-ethenyl-3-(1-ethoxyethoxy)benzene and 3-ethenylphenol (9CI) (CA INDEX NAME)

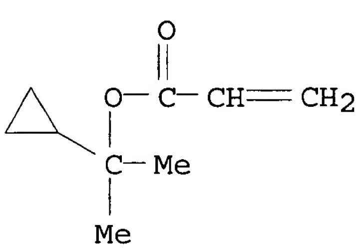
CM 1

CRN 246157-44-8
CMF C12 H16 O2



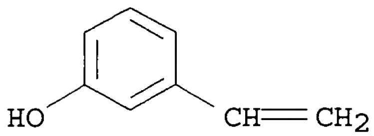
CM 2

CRN 246157-33-5
CMF C9 H14 O2



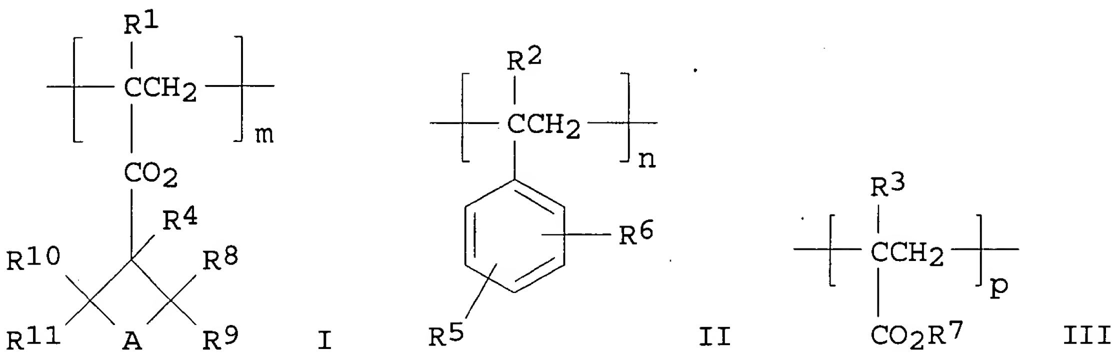
CM 3

CRN 620-18-8
CMF C8 H8 O



IC ICM G03F007-039
ICS C08F220-18; C08K005-00; C08L025-18; C08L031-02; C08L101-00; H01L021-027; C08F212-14
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST pos working **photoresist** acrylic hydroxystyrene polymer; acid generating agent pos working **photoresist**; resolving power pattern profile **photoresist**
IT Positive **photoresists**
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)
IT 144317-44-2 194999-85-4 197447-16-8 207464-07-1 240424-20-8 240424-21-9
(acid-generating agent; pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)
IT 115-18-4
(monomer from; pos.-working **photoresist** contg. acrylic hydroxystyrene polymer from)
IT 120880-88-8P
(monomer; pos.-working **photoresist** contg. acrylic hydroxystyrene polymer from)
IT 109-92-2DP, Ethyl vinyl ether, reaction product with hydrolyzed acetoxystyrene polymer 246157-32-4DP, hydrolyzed, reaction product with Et vinyl ether
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)
IT **246157-34-6** **246157-36-8** **246157-38-0** **246157-40-4** 246157-41-5 246157-43-7 **246157-45-9** 246157-46-0
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)

L90 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2002 ACS
1996:443720 Document No. 125:100187 Radiation-sensitive **resist** composition. Matsuno, Shugo; Abe, Nobunori; Wada, Yasumasa (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 08101509 A2 **19960416** Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-261054 19940930.
GI



AB The title **resist** compn. contains a radiation-sensitive component which generates an acid by irradn. with activated radiation and a polymer having structural units I, II, and III [R1-3 = H, C1-4 (substituted) alkyl, halo, cyano, nitro; R4 = linear, branched, or cyclic C1-8 (substituted) alkyl, (substituted) alkenyl; R5, R6 = H, halo, nitro, cyano, OH, CO2H, linear-, branched-, or cyclic C1-8 (substituted) alkyl, linear-, branched-, or cyclic C1-8 (substituted) alkoxy, C6-12 (substituted) aryl, C7-14 (substituted) aralkyl; R7 = linear-, branched-, or cyclic C1-8 (substituted) alkyl, linear-, branched-, or cyclic C1-8 (substituted) alkenyl; R8-11 = H, halo, C1-4 (substituted) alkyl; .gtoreq.1 of R8-11 is H; A = single bond, divalent org. group which may be substituted; m + n + p = 1, 0 < m .ltoreq. 1, 0 .ltoreq. n < 1, 0 .ltoreq. p < 1]. The **resist** is applicable for patterning of semiconductor devices. A **resist** comprising poly(1-methylcyclohexyl methacrylate) and Ph3S+.CF3SO3- showed high sensitivity and gave a submicron pos. pattern by using excimer laser.

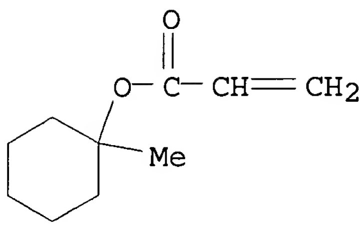
IT **178889-53-7P**
(radiation-sensitive **resist** compn.)

RN 178889-53-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, tricyclo[3.3.1.13,7]dec-1-yl ester, polymer with 4-ethenylphenol and 1-methylcyclohexyl 2-propenoate (9CI) (CA INDEX NAME)

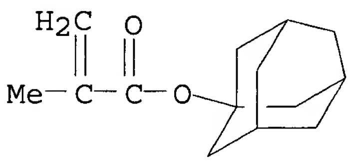
CM 1

CRN 178889-47-9
CMF C10 H16 O2



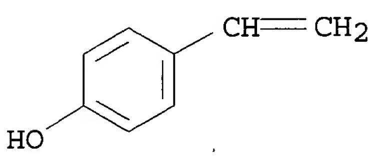
CM 2

CRN 16887-36-8
CMF C14 H20 O2



CM 3

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST radiation sensitive **resist** compn; cycloalkyl arylate polymer **resist**; acid generating compd **resist**; semiconductor device **resist** radiation sensitive
IT Semiconductor devices
(patterning; radiation-sensitive **resist** compn. for)
IT **Resists**
(radiation-sensitive **resist** compn.)
IT 66003-78-9, Triphenylsulfonium triflate
(acid generator; radiation-sensitive **resist** compn.)

IT 120763-30-6P, 1-Methylcyclohexyl methacrylate homopolymer
178889-46-8P 178889-48-0P 178889-50-4P 178889-51-5P
178889-52-6P **178889-53-7P** 178889-54-8P
(radiation-sensitive **resist** compn.)

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=> d his


     FILE 'HCAPLUS'
L1        25917 S TAKEDA ?/AU OR TAKANOBU ?/AU
L2        88783 S WATANABE ?/AU OR OSAMU ?/AU
L3          989 S HIRAHARA ?/AU OR KAZUHIRO ?/AU
L4         5632 S TAKEMURA ?/AU OR KATSUYA ?/AU
L5          207 S KUSAKI ?/AU OR WATARU ?/AU
L6        12138 S SEKI ?/AU OR AKIHIRO ?/AU
L7            1 S L1 AND L2 AND L3 AND L4 AND L5 AND L6
                SEL L7 1 RN

     FILE 'REGISTRY'
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L9            5 S L8 AND PMS/CI
                SEL L9 1,3,4 RN
L10           3 S E6-E8

     FILE 'HCAPLUS'
L11           4 S L10

     FILE 'LREGISTRY'
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L13             STR
L14             STR

     FILE 'REGISTRY'
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L16          22 S L12 AND L13 AND L15
L17        4919 S L12 AND L13 AND L15 FUL
                SAV L17 LEE512/A

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L18             STR

     FILE 'REGISTRY'
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     FILE 'LREGISTRY'
L20             STR L18

     FILE 'REGISTRY'
L21           6 S L12 AND L20 AND L15 SSS SAM SUB=L17
L22          62 S L12 AND L20 AND L15 SSS FUL SUB=L17
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L24          47 S L23 AND L22

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L25          40 S L24

     FILE 'REGISTRY'
L26          16 S L22 AND 2/NC

     FILE 'HCAPLUS'
L27          42 S L22
L28          30 S L26
L29      144413 S PHOTORESIST? OR RESIST OR RESISTS OR PHOTOMASK? OR MASK
L30          40 S (L25 OR L27 OR L28) AND L29
L31          29 S L28 AND L29
L32          39 S L25 AND L29
L33          40 S L27 AND L29
L34          26 S L31 NOT L11
L35          10 S (L32 OR L33) NOT (L11 OR L34)
L36          15 S L34 AND 1907-2000/PY
L37          19 S L34 AND 1907-2001/PY
L38           6 S L35 AND 1907-2001/PY

     FILE 'REGISTRY'

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L12             STR
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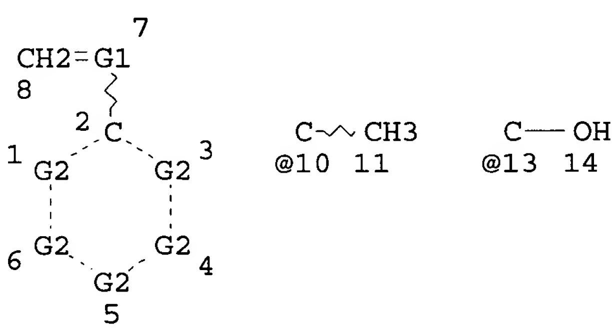


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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  12

STEREO ATTRIBUTES: NONE
L13             STR
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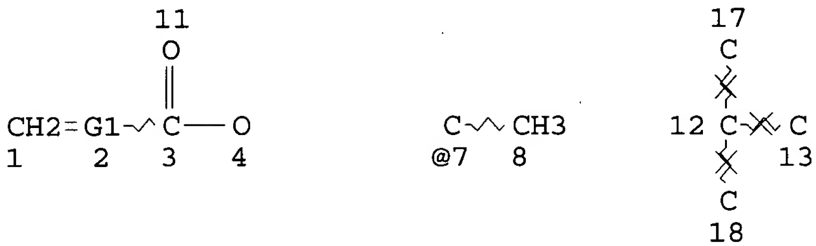

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CONNECT IS E4 RC AT 12
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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
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STEREO ATTRIBUTES: NONE
L15 SCR 2043
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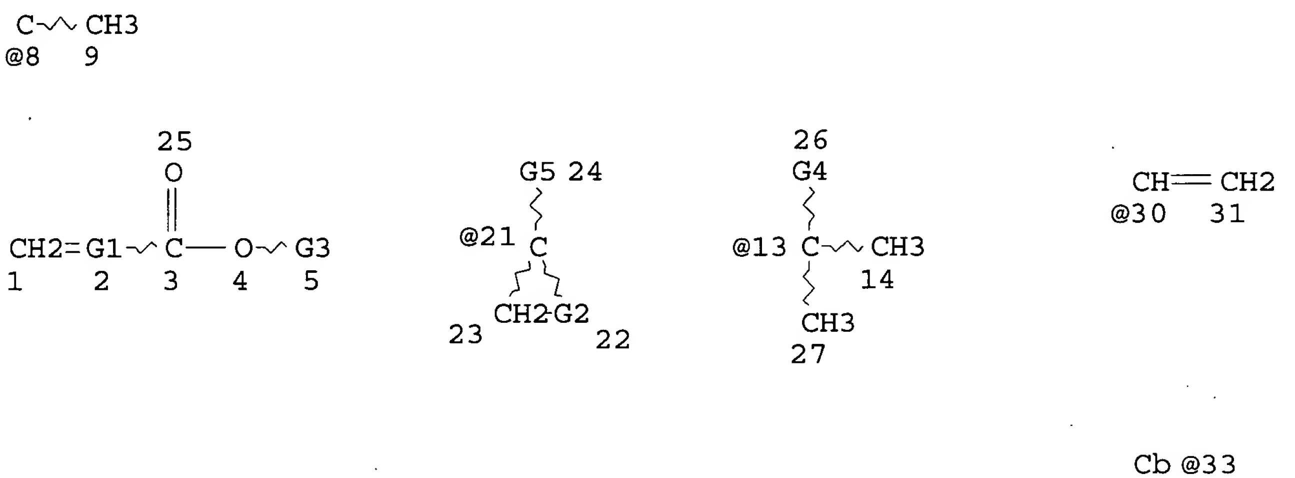
L20 STR



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VAR G4=I-PR/33/30/AC/CN
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DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE
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100.0% PROCESSED 3164 ITERATIONS 62 ANSWERS
SEARCH TIME: 00.00.01

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FILE 'HCAPLUS'
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=> d l11 1-4 cbib abs hitstr hitrn (search of inventors' registry numbers)

L11 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2002 ACS
2001:817219 Document No. 135:350570 Chemically amplified positive resist compositions with improved resolution, pattern profile and focal latitude for deep UV lithography. Ohsawa, Youichi; Watanabe, Jun; Takeda, Takanobu; Seki, Akihiro (Japan). U.S. Pat. Appl. Publ. US 20010038971 A1 20011108, 33 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-799052 20010306. PRIORITY: JP 2000-61350 20000307.

AB A chem. amplified, pos. resist compn. is provided comprising (A) a photoacid generator and (B) a resin which changes its soly. in an alkali developer under the action of acid and has substituents of the formula: Ph-(CH2)nOCH(CH2CH3)- (n = 0,1). The compn. has many advantages including improved focal latitude, improved resoln., minimized line width variation or shape degrdn. even on long-term PED, minimized defect left after coating, development and stripping, and improved pattern profile after development and is suited for microfabrication by any lithog., esp. deep UV lithog.

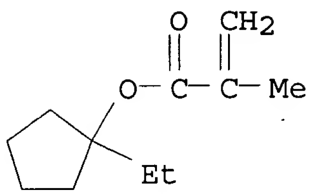
IT **362478-99-7D**, 1,4-Butanediol divinyl ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer, 1-benzyloxypropyl derivs. (chem. amplified pos. resist compns. with improved resoln., pattern profile and focal latitude for deep UV lithog.)

RN 362478-99-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 1,4-bis(ethenyloxy)butane and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1
CMF C11 H18 O2



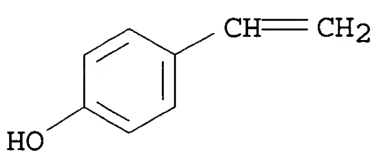
CM 2

CRN 3891-33-6
CMF C8 H14 O2

$H_2C{=}CH-O-(CH_2)_4-O-CH{=}CH_2$

CM 3

CRN 2628-17-3
CMF C8 H8 O



IT **362478-99-7D**, 1,4-Butanediol divinyl ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer, 1-benzyloxypropyl derivs. (chem. amplified pos. resist compns. with improved resoln., pattern profile and focal latitude for deep UV lithog.)

L11 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2002 ACS
2001:781404 Document No. 135:336907 Chemically amplified positive resist compositions with improved resolution, pattern profile and focal latitude for deep UV lithography. Ohsawa, Youichi; Watanabe, Jun; Takeda, Takanobu; Seki, Akihiro (Japan). U.S. Pat. Appl. Publ. US 20010033994 A1 20011025, 34 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-799009 20010306. PRIORITY: JP 2000-61357 20000307.

AB A chem. amplified, pos. resist compn. is provided comprising (A) a photoacid generator and (B) a resin which changes its soly. in an alkali developer under the action of acid and has substituents of the formula: C6H11 -(CH2)nOCH(CH2CH3)- wherein C6H11 is cyclohexyl and n = 0,1. The compn. has many advantages including improved focal latitude, improved resoln., minimized line width variation or

shape degrdn. even on long-term PED, minimized defect left after coating, development and stripping, and improved pattern profile after development and is suited for microfabrication by any lithog., esp. deep UV lithog.

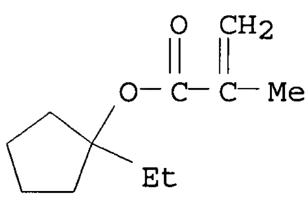
IT **362478-99-7D**, 1,4-Butanediol divinyl ether-p-hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer, cyclohexyloxypropyl ethers
(chem. amplified pos. resist compns. with improved resoln., pattern profile and focal latitude for deep UV lithog.)

RN 362478-99-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 1,4-bis(ethenyloxy)butane and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1
CMF C11 H18 O2



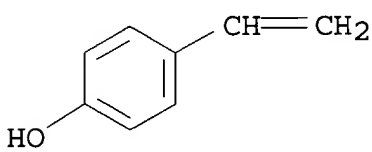
CM 2

CRN 3891-33-6
CMF C8 H14 O2

$H_2C{=}CH{-}O{-}(CH_2)_4{-}O{-}CH{=}CH_2$

CM 3

CRN 2628-17-3
CMF C8 H8 O



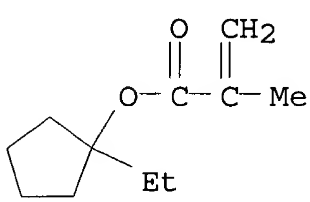
IT **362478-99-7D**, 1,4-Butanediol divinyl ether-p-hydroxystyrene-

1-ethylcyclopentyl methacrylate copolymer, cyclohexyloxypropyl ethers
(chem. amplified pos. resist compns. with improved resoln., pattern profile and focal latitude for deep UV lithog.)

L11 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2002 ACS
2001:763485 Document No. 135:310937 Chemical amplification resist compositions. Takeda, Takanobu; Watanabe, Osamu; Hirahara, Kazuhiro; Takemura, Katsuya; Kusaki, Wataru; Seki, Akihiro (Japan). U.S. Pat. Appl. Publ. US 20010031421 A1 20011018, 12 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-800512 20010308. PRIORITY: JP 2000-64277 20000309.
AB A chem. amplification pos. resist compn. comprises a polymeric mixt. of a polyhydroxystyrene deriv. having a mol. wt. of 1000-500,000 and a copolymer of hydroxystyrene and (meth)acrylate having a mol. wt. of 1000-500,000, as a base resin, has improved dry etching resistance, high sensitivity, high resoln., and process adaptability, and is suppressed in the slimming of pattern films after development with aq. base.
IT **362478-98-6**, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene-isobornyl acrylate copolymer **362478-99-7**, 1,4-Butanediol divinyl ether-1-ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer **362479-01-4**
(chem. amplification resist compns. contg.)
RN 362478-98-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol and rel-(1R,2R,4R)-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

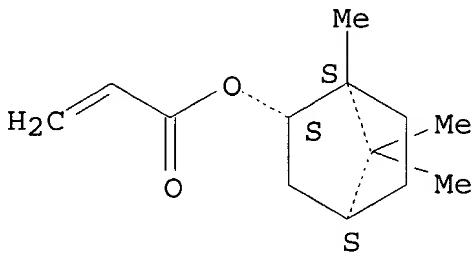
CRN 266308-58-1
CMF C11 H18 O2



CM 2

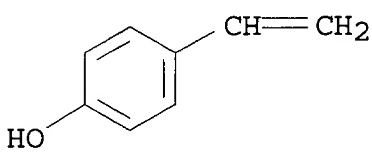
CRN 5888-33-5
CMF C13 H20 O2

Relative stereochemistry.



CM 3

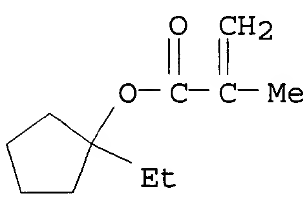
CRN 2628-17-3
CMF C8 H8 O



RN 362478-99-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 1,4-bis(ethenyloxy)butane and 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 266308-58-1
CMF C11 H18 O2



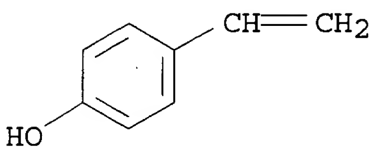
CM 2

CRN 3891-33-6
CMF C8 H14 O2

$H_2C{=}CH{-}O{-}(CH_2)_4{-}O{-}CH{=}CH_2$

CM 3

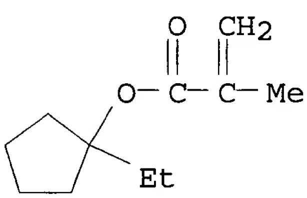
CRN 2628-17-3
CMF C8 H8 O



RN 362479-01-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol and (tetrahydro-2-furanyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

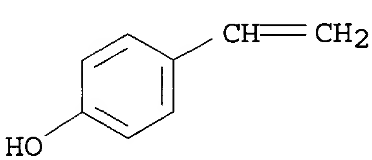
CM 1

CRN 266308-58-1
CMF C11 H18 O2



CM 2

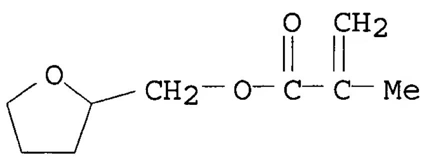
CRN 2628-17-3
CMF C8 H8 O



CM 3

CRN 2455-24-5

CMF C9 H14 O3



IT **362478-98-6**, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene-isobornyl acrylate copolymer **362478-99-7**, 1,4-Butanediol divinyl ether-1-ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer **362479-01-4**
(chem. amplification resist compns. contg.)

L11 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2002 ACS

2001:709843 Document No. 135:264558 Chemically amplified positive resist composition and patterning method. Takeda, Takanobu; Watanabe, Jun; Takemura, Katsuya; Koizumi, Kenji (Shin-Etsu Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 1136885 A1 20010926, 60 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-302636 20010321. PRIORITY: JP 2000-79414 20000322.

AB A chem. amplified, pos. resist compn. comprises (1) org. solvent, (2) polymer having acid labile groups, (3) photoacid generator, (4) basic compd., and (5) compd. contg. at least two allyloxy groups of R1R2C=CR3CHR4O (R1,4 = H, C1-12 alkyl; R1 and R3, or R2 and R3 may form a ring) in a mol. The resist compn. has a high sensitivity, resoln., dry etching resistance and process adaptability, and is improved in the slimming of a pattern film after development with an aq. base soln. The resist compn. is also applicable to the thermal flow process suited for forming a microsize contact hole pattern for the fabrication of VLSI.

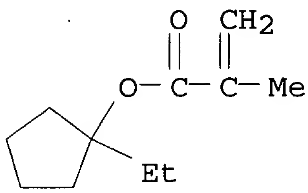
IT **362478-98-6 362478-99-7 362479-01-4**
(chem. amplified pos. resist compn. contg.)

RN 362478-98-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol and rel-(1R,2R,4R)-1,7,7-trimethylbicyclo[2.2.1]hept-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

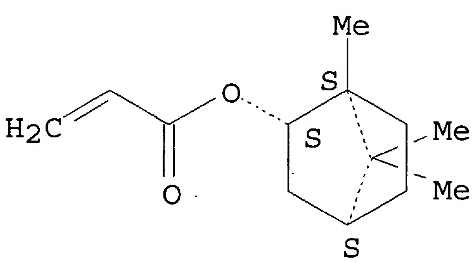
CRN 266308-58-1
CMF C11 H18 O2



CM 2

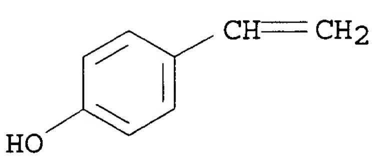
CRN 5888-33-5
CMF C13 H20 O2

Relative stereochemistry.



CM 3

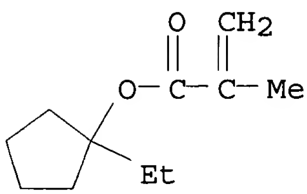
CRN 2628-17-3
CMF C8 H8 O



RN 362478-99-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 1,4-bis(ethenyloxy)butane and 4-ethenylphenol (9CI) (CA INDEX NAME)

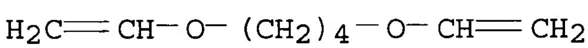
CM 1

CRN 266308-58-1
CMF C11 H18 O2



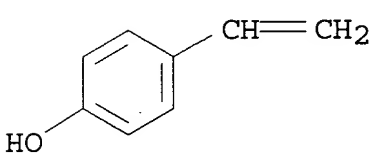
CM 2

CRN 3891-33-6
CMF C8 H14 O2



CM 3

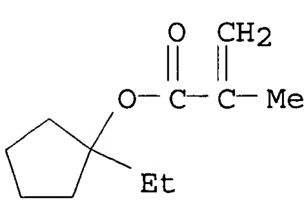
CRN 2628-17-3
CMF C8 H8 O



RN 362479-01-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol and (tetrahydro-2-furanyl)methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

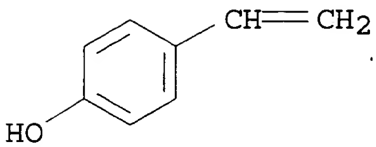
CM 1

CRN 266308-58-1
CMF C11 H18 O2



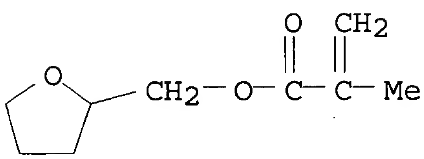
CM 2

CRN 2628-17-3
CMF C8 H8 O



CM 3

CRN 2455-24-5
CMF C9 H14 O3



IT **362478-98-6 362478-99-7 362479-01-4**
(chem. amplified pos. resist compn. contg.)

=> d l37 1-19 cbib abs hitstr hitind

L37 ANSWER 1 OF 19 HCAPLUS COPYRIGHT 2002 ACS
2001:469366 Document No. 135:68557 Photolithography and its **chemically-amplified photoresists** containing specific sulfonyldiazomethane compounds. Seki, Akihiro; Takemura, Katsuya; Osawa, Yoichi; Watanabe, Atsushi; Nagura, Shigehiro (Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001174984 A2 **20010629**, 49 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-294695 20000927. PRIORITY: JP 1999-285450 19991006.

AB The **photoresists** contain (i) [C6H5-p-q(R1CO2)qR2pSO2]nC:N2(GR3)m (R1, R3 = C1-10 alkyl, C6-14 aryl; R2 = C1-6 alkyl; G = SO2, CO; p = 0-4 integer; q = 1-5 integer; 1 .ltoreq. p + q .ltoreq. 5; n = 1, 2; m = 0, 1; m + n = 2) or (ii) R1CO2-p-C6H4SO2C:N2SO2-p-C6H4OCOR1 (R1 = the same definition as above) as photoacid generators. The **photoresists** may comprise (.alpha.-methyl-)p-hydroxystyrene-(meth)acrylate ester copolymers with Mw 3,000-100,000 contg. .ltoreq.80 (.noteq.0)-mol% acid-labile substituents. Markush structures for preferable

acid-labile substituents are given. Photolithog. employing the **photoresists** and .ltoreq.300-nm high-energy beam or electron beam is also claimed. The **photoresists** show excellent post-development profiles.

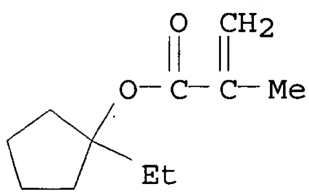
IT **326925-68-2**
(**chem.**-**amplified** pos. **photoresists** contg. alkali-soly.-improved sp. sulfonylazomethanes for far-UV photolithog.)

RN 326925-68-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

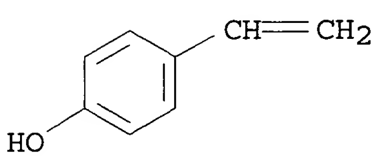
CM 1

CRN 266308-58-1
CMF C11 H18 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-004
ICS C07C381-14; C08K005-09; C08K005-13; C08K005-16; C08K005-41; C08K005-43; C08L025-02; C08L025-18; C08L033-02; C08L033-04; C08L035-00; G03F007-039; G03F007-26

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 25, 37

ST sulfonylazomethane photoacid generator **chem amplified photoresist**; hydroxystyrene methacrylate copolymer **chem amplified photoresist**; development profile improved far UV **photoresist**

IT Positive **photoresists**

(**chem. amplified; chem.-**
amplified pos. **photoresists** contg.
alkali-soly.-improved sp. sulfonylazomethanes for far-UV
photolithog.)

IT Photolithography
(**chem.-amplified** pos. **photoresists**
contg. alkali-soly.-improved sp. sulfonylazomethanes for far-UV
photolithog.)

IT 2628-17-3D, p-Hydroxystyrene, ethoxyethyl ether, 1,2-propanediol divinyl ether copolymer 2628-17-3D, p-Hydroxystyrene, ethoxyethyl ether,tert-butoxycabonic ester, 1,2-propanediol divinyl ether copolymer 59269-51-1D, Polyhydroxystyrene, ethoxyethyl ether 155214-68-9D, ethoxyethyl ether 189257-17-8, Poly(hydroxystyrene) acetate **326925-68-2** 326925-73-9 345580-95-2 346428-50-0 346428-52-2
(**chem.-amplified** pos. **photoresists**
contg. alkali-soly.-improved sp. sulfonylazomethanes for far-UV
photolithog.)

IT 104884-57-3P 327614-10-8P 334700-88-8P 334700-90-2P 334700-93-5P 334700-97-9P 346428-58-8P 346428-65-7P
(in prepn. of sulfonyldiazomethane derivs. as photoacid
generators of **chem.-amplified**
photoresists)

IT 334700-94-6P 334700-95-7P 334700-99-1P 334701-00-7P
(in prepn. of sulfonyldiazomethane derivs. as photoacid
generators of **chem.-amplified**
photoresists)

IT 70-11-1, .alpha.-Bromoacetophenone 75-09-2, Dichloromethane, reactions 75-36-5, Acetyl chloride 79-03-8, Propionyl chloride 98-88-4, Benzoyl chloride 637-89-8, 4-Hydroxythiophenol 941-55-9, p-Toluenesulfonylazide 3282-30-2, Pivaloyl chloride 68483-71-6, Chloromethylcyclohexyl sulfide
(in prepn. of sulfonyldiazomethane derivs. as photoacid
generators of **chem.-amplified**
photoresists)

IT 39153-56-5, Bis(2,4-dimethylphenylsulfonyl)diazomethane 161453-44-7 161453-47-0 334701-01-8
(photoacid generators; **chem.-amplified** pos.
photoresists contg. alkali-soly.-improved sp.
sulfonylazomethanes for far-UV photolithog.)

IT 334700-91-3P 334700-96-8P
(photoacid generators; **chem.-amplified** pos.
photoresists contg. alkali-soly.-improved sp.
sulfonylazomethanes for far-UV photolithog.)

L37 ANSWER 2 OF 19 HCAPLUS COPYRIGHT 2002 ACS

2001:463218 Document No. 135:68552 Novel sulfonium salts, novel iodonium salts, photoacid generators, **chemically amplified resists**, and method for pattern formation. Osawa, Yoichi; Watanabe, Atsushi; Watanabe, Satoshi; Nagura, Shigehiro (Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001172251 A2 **20010626**, 33 pp.

(Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-301972 20001002. PRIORITY: JP 1999-285143 19991006.

AB Onium salts PhCR1R2C6H4SO3--p R3aM+ (R1 = H, C1-6 linear, branched, or cyclic alkyl; R2 = H, C1-6 linear, branched, or cyclic alkyl, Ph; R3 = C1-10 (un)substituted linear, branched, or cyclic alkyl, C6-14 (un)substituted aryl; M = S, I; a = 3 when M = S; a = 2 when M = I). Further specified Markush structures of sulfonium and iodonium salts are also given. Also claimed are (1) **chem. amplified resists** contg. (A) polymers which change their soly. in alk. developers by acids, (B) radiation-induced photoacid generating onium salts, and optionally (C) radiation-induced photoacid generators other than B and (2) pattern formation by **masked** exposure of the heated **resist**, formed on a substrate, under electron beam or high-energy beam of wavelength .ltoreq.300 nm via a **photomask** followed by treatment and development. Further specification of the **resist** compns. are also given. Patterns with excellent profiles are obtained even under long post exposure bake.

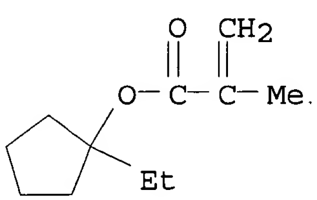
IT **326925-68-2**, 1-Ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer
(sulfonium and iodonium salts as radiation-induced photoacid generators in **chem. amplified resists** for UV and electron beam exposure)

RN 326925-68-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

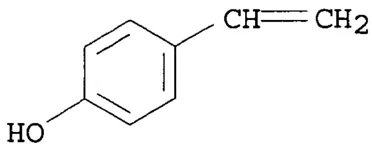
CM 1

CRN 266308-58-1
CMF C11 H18 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



IC ICM C07C309-73
ICS C07C381-12; C09K003-00; G03F007-004; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 25
ST sulfonium salt radiation induced photoacid generator; iodonium salt radiation induced photoacid generator; onium salt radiation induced photoacid generator; **chem amplified resist** onium photoacid generator; far UV photolithog patterning **resist**; electron beam photolithog patterning **resist**; photolithog patterning **chem amplified resist**
IT **Photoresists**
(UV; sulfonium and iodonium salts as radiation-induced photoacid generators in **chem. amplified resists** for UV and electron beam exposure)
IT **Photoresists**
(**chem.-amplified**; sulfonium and iodonium salts as radiation-induced photoacid generators in **chem . amplified resists** for UV and electron beam exposure)
IT Onium compounds
(iodonium, photoacid generator; sulfonium and iodonium salts as radiation-induced photoacid generators in **chem. amplified resists** for UV and electron beam exposure)
IT Sulfonium compounds
(photoacid generator; sulfonium and iodonium salts as radiation-induced photoacid generators in **chem. amplified resists** for UV and electron beam exposure)
IT Electron beam **resists**
Photolithography
(sulfonium and iodonium salts as radiation-induced photoacid generators in **chem. amplified resists** for UV and electron beam exposure)
IT 345580-85-0P
(photoacid generator; sulfonium and iodonium salts as radiation-induced photoacid generators in **chem. amplified resists** for UV and electron beam exposure)
IT 39153-56-5, Bis(2,4-dimethylphenylsulfonyl)diazomethane
66003-78-9, Triphenylsulfonium trifluoromethanesulfonate
138529-81-4, Bis(cyclohexylsulfonyl)diazomethane 161453-44-7

195723-94-5, (4-tert-Butoxyphenyl)diphenylsulfonium
10-camphorsulfonate 205514-94-9, N-10-
Camphorsulfonyloxysuccinimide 345580-87-2 345580-88-3
(photoacid generator; sulfonium and iodonium salts as
radiation-induced photoacid generators in **chem.**
amplified resists for UV and electron beam
exposure)

IT 345580-89-4P 345580-90-7P 345580-92-9P
(sulfonium and iodonium salts as radiation-induced photoacid
generators in **chem. amplified resists**
for UV and electron beam exposure)

IT 24979-70-2D, Poly(p-hydroxystyrene), ethers **326925-68-2**,
1-Ethylcyclopentyl methacrylate-p-hydroxystyrene copolymer
345580-95-2
(sulfonium and iodonium salts as radiation-induced photoacid
generators in **chem. amplified resists**
for UV and electron beam exposure)

IT 4270-70-6P, Triphenylsulfonium chloride 61358-24-5P,
Bis(4-tert-butylphenyl)iodonium hydrogen sulfate 199440-87-4P,
4-Phenylmethylbenzenesulfonic acid 199733-54-5P,
4-tert-Butoxyphenyldiphenylsulfonium chloride 326925-53-5P,
4-tert-Butylphenyldiphenylsulfonium chloride 345580-93-0P
345580-94-1P
(sulfonium and iodonium salts as radiation-induced photoacid
generators in **chem. amplified resists**
for UV and electron beam exposure)

IT 75-09-2, Dichloromethane, reactions 98-06-6, tert-Butylbenzene
101-81-5, Diphenylmethane 108-90-7, Chlorobenzene, reactions
519-73-3, Triphenylmethane 778-22-3, 2,2-Diphenylpropane
945-51-7, Diphenyl sulfoxide 3972-56-3, 4-tert-Butylchlorobenzene
7664-93-9, Sulfuric acid, reactions 7758-05-6, Potassium iodate
7790-94-5, Chlorosulfonic acid 18995-35-2, 4-tert-
Butoxychlorobenzene
(sulfonium and iodonium salts as radiation-induced photoacid
generators in **chem. amplified resists**
for UV and electron beam exposure)

L37 ANSWER 3 OF 19 HCAPLUS COPYRIGHT 2002 ACS
2001:356328 Document No. 134:346477 **Chemically**
amplified positive **resist** composition and
patterning method. Takemura, Katsuya; Koizumi, Kenji; Kaneko,
Tatsushi; Sakurada, Toyohisa (Shin-Etsu Chemical Co., Ltd., Japan).
Eur. Pat. Appl. EP 1099983 A1 **20010516**, 53 pp. DESIGNATED
STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW.
APPLICATION: EP 2000-310001 20001110. PRIORITY: JP 1999-323332
19991112.

AB The invention relates to a **chem.-amplified** pos.
resist compn. for forming a contact hole pattern by the
thermal flow process. A method for forming a contact hole pattern
using a **chem.-amplified** pos. **resist**
compn. comprising a polymer as the base resin involves the thermal

flow step of heat treating the contact hole pattern for further reducing the size of contact holes. A **chem.-amplified** pos. **resist** compn. comprising a base resin and a compd. contg. two to six functional groups, specifically alkenyloxy, acetal and ortho-ester groups in the mol. is suitable for forming a contact hole pattern by the thermal flow process. The invention also relates to a method for forming a microsize contact hole pattern in the manuf. of VLSI.

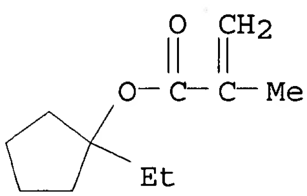
IT **326925-68-2**
(**chem.-amplified** pos. **resist** compn. comprising base resin and suitable for forming contact-hole pattern by thermal flow in VLSI manufg. and contg.)

RN 326925-68-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

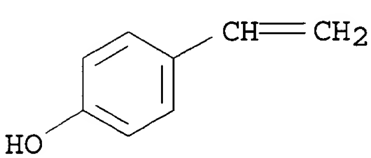
CM 1

CRN 266308-58-1
CMF C11 H18 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST pos **resist** alkenyloxy acetal ortho ester contact hole pattern

IT Positive **photoresists**
(**chem.-amplified** pos. **resist** compn.

comprising base resin and suitable for forming contact-hole pattern by thermal flow in VLSI manufg.)

IT Polyoxyalkylenes, reactions
(**chem.-amplified** pos. **resist** compn. comprising base resin and suitable for forming contact-hole pattern by thermal flow in VLSI manufg. and contg.)

IT 183-97-1 764-99-8 1067-51-2 3754-60-7 3891-33-6D, 1,4-Butanediol divinyl ether, reaction products with hydroxystyrene homopolymer ethoxyethyl ether 3975-12-0 17351-75-6 19309-29-6 135965-88-7 323193-21-1 338438-46-3 338438-47-4
(additive for controlling flow rate in thermal flow process of patterning using **chem.-amplified** pos. **resist** compn.)

IT 24979-70-2D, acetals and esters 147625-42-1D, acetals 150746-92-2 **326925-68-2** 326925-71-7 338438-44-1 338438-45-2
(**chem.-amplified** pos. **resist** compn. comprising base resin and suitable for forming contact-hole pattern by thermal flow in VLSI manufg. and contg.)

IT 102-71-6, Triethanolamine, reactions
(**chem.-amplified** pos. **resist** compn. comprising base resin and suitable for forming contact-hole pattern by thermal flow in VLSI manufg. and contg.)

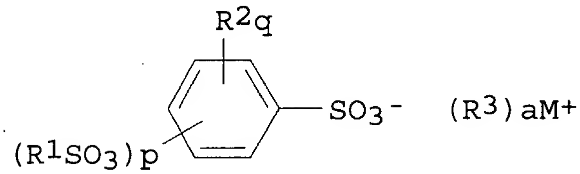
IT 39153-56-5 138529-81-4, Bis(cyclohexylsulfonyl)diazomethane 138529-84-7 161453-44-7 195723-94-5, (4-tert-Butoxyphenyl)diphenylsulfonium 10-camphorsulfonate
(photoacid generator;; **chem.-amplified** pos. **resist** compn. comprising base resin and suitable for forming contact-hole pattern by thermal flow in VLSI manufg. and contg.)

IT 141-78-6, Ethyl acetate, reactions 84540-57-8, Propylene glycol methyl ether acetate
(solvent for **chem.-amplified** pos. **resist** compn. comprising base resin)

IT 11114-17-3, FC 430
(surfactant for **chem.-amplified** pos. **resist** compn. comprising base resin)

L37 ANSWER 4 OF 19 HCAPLUS COPYRIGHT 2002 ACS
2001:133716 Document No. 134:200517 Novel onium salts as photoacid generators for **resist** compositions and patterning process. Ohsawa, Youichi; Watanabe, Jun; Kusaki, Wataru; Watanabe, Satoshi; Nagata, Takeshi; Nagura, Shigehiro (Shin-Etsu Chemical Co., Ltd., Japan). Eur. Pat. Appl. EP 1077391 A1 **20010221**, 77 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-306997 20000816. PRIORITY: JP 1999-230122 19990816; JP 1999-230126 19990816.

GI



I

AB Disclosed is a **chem. amplification** type **resist** compn. that comprises as a photoacid generator novel onium salts of the formula I (R1 = C1-10 alkyl, C6-14 aryl; R2 = H, C1-6 alkyl; p = 1-5, q = 0-4, p+q = 5; R3 = C1-10 alkyl, C6-14 aryl; M = S, I; a = 3 when M=S, 2 when M=I). The **chem. amplification** type **resist** comprising the onium salt as a photoacid generator is suited for microfabrication, esp. by deep UV lithog. and has many advantages including improved resoln., minimized line width variation or shape degrdn. even on long-term post-exposure delay, minimized defect after coating, development and stripping, and improved pattern profile after development.

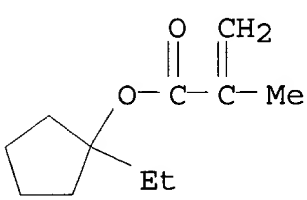
IT **326925-68-2**, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer **326925-70-6**
(photoacid generators for **photoresist** compns. based on sulfonium and iodonium salts and polymers which change their soly. in alk. developer by acid action)

RN 326925-68-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

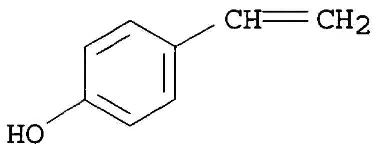
CM 1

CRN 266308-58-1
CMF C11 H18 O2



CM 2

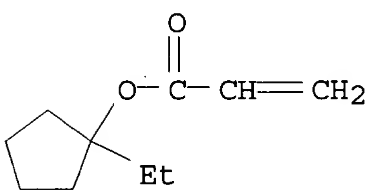
CRN 2628-17-3
CMF C8 H8 O



RN 326925-70-6 HCAPLUS
CN 2-Propenoic acid, 1-ethylcyclopentyl ester, polymer with
4-ethenylphenol (9CI) (CA INDEX NAME)

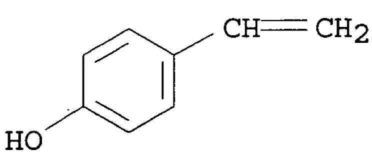
CM 1

CRN 326925-69-3
CMF C10 H16 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-004
ICS G03F007-039; C07C381-12; C07C309-73; C07C309-71
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 76
ST onium salt photoacid generator **photoresist chem**
amplified UV lithog
IT Photolithography
Photoresists
(UV; sulfonium and iodonium salts as photoacid generators for
chem. amplified resist compns. and
patterning process)
IT Onium compounds

(iodonium; onium salts as photoacid generators for **resist** compns. and patterning process)

IT Sulfonium compounds
(sulfonium and iodonium salts as photoacid generators for **chem. amplified resist** compns. and patterning process)

IT 102-82-9, Tri-n-butylamine 3235-51-6, Tris(2-methoxyethyl)amine
(basic compd.; photoacid generators for **photoresist** compns. based on sulfonium and iodonium salts and patterning process)

IT 69-72-7, Salicylic acid, processes 126-00-1
(photoacid generators for **photoresist** compns. based on sulfonium and iodonium salts and patterning process)

IT 24979-70-2D, Poly(p-hydroxystyrene), ethoxyethyl ether, tert-butoxycarbonate and acetate derivs. 71545-61-4D, reaction products with poly(p-hydroxystyrene) contg. ether and ester groups **326925-68-2**, p-Hydroxystyrene-1-ethylcyclopentyl methacrylate copolymer **326925-70-6** 326925-71-7 326925-72-8 326925-73-9
(photoacid generators for **photoresist** compns. based on sulfonium and iodonium salts and polymers which change their soly. in alk. developer by acid action)

IT 97-64-3, Ethyl lactate 84540-57-8, Propylene glycol methyl ether acetate
(solvent; photoacid generators for **photoresist** compns. based on sulfonium and iodonium salts and patterning process)

L37 ANSWER 5 OF 19 HCAPLUS COPYRIGHT 2002 ACS

2000:418051 Document No. 133:51183 **Resist** material and manufacture thereof. Yamana, Shinji (NEC Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2000171977 A2 **20000623**, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-350621 19981210.

AB The title **resist** material contains a base resin to which Ph-contg. protective groups link. A method of manufg. the material is also claimed, in which Ph-contg. protective groups with mol. wt. 100-200 are add to the base resin after polymn. thereof or monomers protected with the protective groups and ones having no protective group are polymd. to give the base resin. The material provides high resoln. **resist** patterns with excellent resistance to etching by using KrF excimer laser.

IT **275378-82-0**
(**resist** contg. base polymer with protective group)

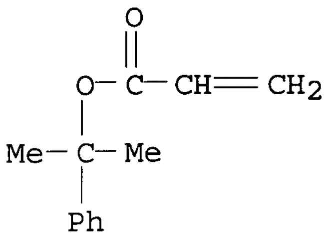
RN 275378-82-0 HCAPLUS

CN 2-Propenoic acid, 1-methyl-1-phenylethyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

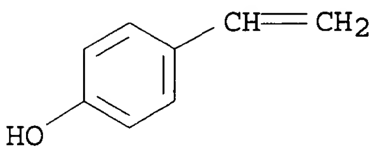
CRN 67704-03-4

CMF C12 H14 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS C08F008-14; C08F212-14; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST **resist** base polymer phenyl protective group
IT **Resists**
(**resist** contg. base polymer with protective group)
IT 275378-79-5 275378-81-9 **275378-82-0**
(**resist** contg. base polymer with protective group)

L37 ANSWER 6 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1999:789820 Document No. 132:42835 Positive-working **photoresist** composition containing hydroxystyrene copolymer. Tan, Shiro; Fujinomori, Toru; Aogo, Toshiaki (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11344808 A2 **19991214** Heisei, 36 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-82407 19990325. PRIORITY: JP 1998-84164 19980330.
GI

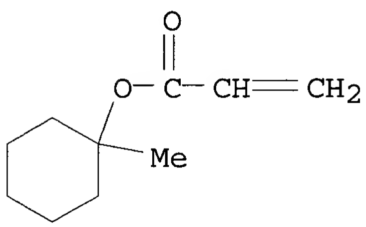
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The pos.-working **photoresist** compn. comprises (1) a copolymer selected from I-III (R1,2 = H, Me; R3 = tert-alkyl, tert-cycloalkyl; X = divalent org. residue), (2) a photoacid, and

(3) a solvent.
IT **252570-50-6P**
(pos.-working **photoresist** compn. contg. hydroxystyrene copolymer)
RN 252570-50-6 HCAPLUS
CN 2-Propenoic acid, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

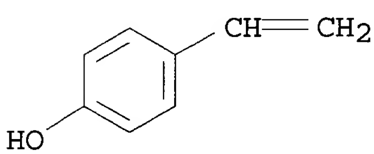
CM 1

CRN 178889-47-9
CMF C10 H16 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O

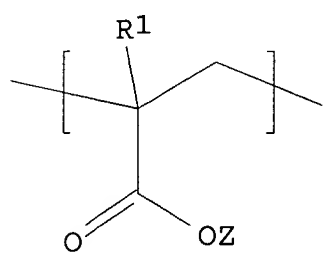


IC ICM G03F007-039
ICS C08F212-04; C08F220-18; G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 76
ST **photoresist** compn hydroxystyrene copolymer
IT **Photoresists**
(pos.-working **photoresist** compn. contg. hydroxystyrene copolymer)
IT 124737-97-9 197447-16-8
(photoacid; pos.-working **photoresist** compn. contg. hydroxystyrene copolymer)
IT 159296-87-4P, tert-Butyl acrylate-p-vinylphenol copolymer
200808-68-0P **252570-50-6P** 252570-51-7P 252570-52-8P
(pos.-working **photoresist** compn. contg. hydroxystyrene

copolymer)

L37 ANSWER 7 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1997:526127 Document No. 127:191217 Heat-resistant acrylic acid ester polymers. Abe, Nobunori; Takahashi, Shinichi (Nippon Zeon Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09202811 A2 **19970805** Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-32815 19960126.

GI



I

AB Title polymers, useful for **photoresists**, etc., contain repeating units I [R1 = H, halo, Me, Et, CN; Z = ABDEFGCR2:CR3R4; R2-R4 = H, halo, C1-4 (branched) alkyl, C2-5 (substituted) vinyl, C3-8 (substituted) allyl, C4-10 dienyl, C6-20 trienyl, C8-20 tetraenyl, C10-20 pentaenyl; A, B, D, E, F, G = single bond or methylene which may be substituted with halo, OH, or C1-4 alkyl]. Thus, 3-Me-2-butene-1-ol 0.51, Et3N 0.51, and methacryloyl chloride 0.51 mol were allowed to react at room temp. in CH2Cl2 to give 3-methyl-2-butenyl methacrylate (I), 77.1 g of which was stirred at 80.degree. in dioxane in the presence of AIBN, pptd. in MeOH, washed, and dried to give II homopolymer with Mw 24,500 and Mw/Mn 2.31. A pos. **resist** contg. 51:49 4-hydroxystyrene-II copolymer showed excellent heat resistance.

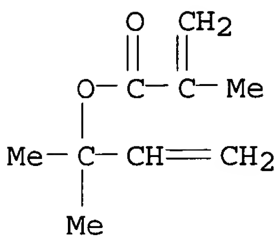
IT **194089-59-3P 194089-62-8P**
(heat-resistant acrylic acid dienyloxycarbonyl ester polymers esp. suitable for **photoresists**)

RN 194089-59-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-propenyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

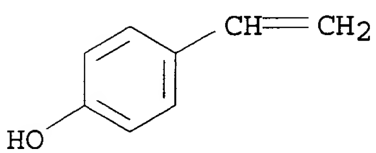
CM 1

CRN 173947-55-2
CMF C9 H14 O2



CM 2

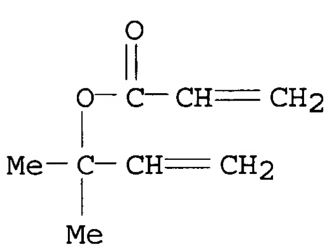
CRN 2628-17-3
CMF C8 H8 O



RN 194089-62-8 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-2-propenyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

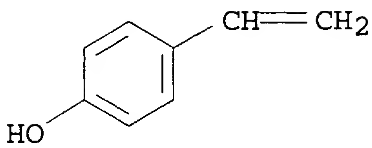
CM 1

CRN 120880-88-8
CMF C8 H12 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



IC ICM C08F020-12
ICS C08F020-22; C08F020-26; C08F020-42; G03F007-027; G03F007-038; C08F299-00
CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 74
ST dienyloxycarbonyl acrylate polymer prepn heat resistance; **photoresist** dienyloxycarbonyl acrylate polymer prepn; methylbutenyl methacrylate homopolymer prepn heat resistance; hydroxystyrene methylbutenyl methacrylate copolymer prepn **photoresist**
IT Heat-resistant materials
Photoresists
(heat-resistant acrylic acid dienyloxycarbonyl ester polymers esp. suitable for **photoresists**)
IT 155904-16-8P 178177-89-4P, 4-Hydroxystyrene-3-methyl-2-butenyl methacrylate copolymer 194089-53-7P 194089-54-8P 194089-55-9P 194089-56-0P 194089-57-1P 194089-58-2P **194089-59-3P** 194089-60-6P 194089-61-7P **194089-62-8P**
(heat-resistant acrylic acid dienyloxycarbonyl ester polymers esp. suitable for **photoresists**)
IT 72879-37-9P 85269-36-9P 120880-88-8P 132576-26-2P 173947-55-2P 194089-52-6P
(heat-resistant acrylic acid dienyloxycarbonyl ester polymers esp. suitable for **photoresists**)
IT 115-18-4 556-82-1 814-68-6, Acryloyl chloride 920-46-7, Methacryloyl chloride 1569-50-2, 3-Penten-2-ol
(heat-resistant acrylic acid dienyloxycarbonyl ester polymers esp. suitable for **photoresists**)

L37 ANSWER 8 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1997:521957 Document No. 127:197738 **Resist** composition. Abe, Nobunori; Takahashi, Nobukazu (Nippon Zeon Co., Ltd., Japan; Abe, Nobunori; Takahashi, Nobukazu). PCT Int. Appl. WO 9727515 A1 **19970731**, 41 pp. DESIGNATED STATES: W: JP, KR, US; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1997-JP175 19970127. PRIORITY: JP 1996-32814 19960126.
AB A **resist** compn. with improved sensitivity, resoln., and heat resistance comprises (a) a polymer with structural units having a group instable against acids and (b) a radiation-sensitive compd. capable of generating acids upon irradn. with an actinic radiation, wherein the polymer (a) is one prepd. by polymg. 10 to 100 % by wt. of a (meth)acrylic ester (i) contg. an allyl group having .gtoreq.2 substituents as an alc. residue with 0 to 90 % by wt. of a monomer

(ii) copolymerizable with the (meth)acrylic ester, and a method for pattern formation using the **resist** compn.

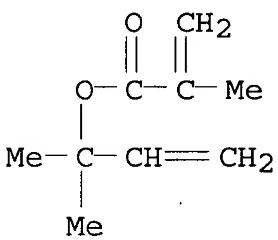
IT **194089-59-3P 194409-50-2P**, 1,1-Dimethyl-2-propenyl methacrylate-styrene copolymer
(**resist** compn.)

RN 194089-59-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-propenyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

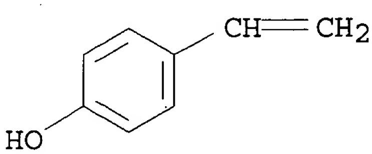
CM 1

CRN 173947-55-2
CMF C9 H14 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O

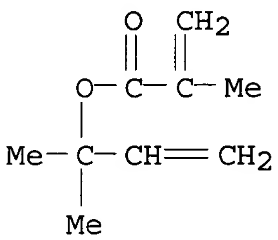


RN 194409-50-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-propenyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

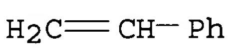
CM 1

CRN 173947-55-2
CMF C9 H14 O2



CM 2

CRN 100-42-5
CMF C8 H8

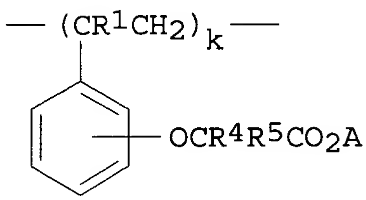


IC ICM G03F007-039
ICS C08L033-06; C08L025-00; C08F299-00; C09D133-04; C09D125-00
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38, 76
ST polymer **resist** compn; **photoresist** polymer compn
IT **Photoresists**
(**resist** compn.)
IT 100-42-5, reactions 115-18-4 121-44-8, reactions 556-82-1 814-68-6, Acryloyl chloride 920-46-7, Methacryloyl chloride 1569-50-2, 3-Penten-2-ol 2628-17-3
(**resist** compn.)
IT 72879-37-9P, 3-Methyl-2-butenyl acrylate 132576-26-2P, 1-Methyl-2-butenyl acrylate 173947-55-2P, 1,1-Dimethyl-2-propenyl methacrylate 194089-52-6P, 1-Methyl-2-butenyl methacrylate
(**resist** compn.)
IT 194089-54-8P, Poly(1,1-dimethyl-2-propenyl methacrylate) 194089-56-0P, Poly(1-methyl-2-butenyl acrylate)
(**resist** compn.)
IT **194089-59-3P 194409-50-2P**, 1,1-Dimethyl-2-propenyl methacrylate-styrene copolymer 194409-51-3P, 1-Methyl-2-butenyl acrylate-styrene copolymer 194409-52-4P, 1-Methyl-2-butenyl methacrylate-styrene copolymer 194409-53-5P, 3-Methyl-2-butenyl acrylate-styrene copolymer
(**resist** compn.)
IT 194089-60-6, 4-Hydroxystyrene-3-methyl-2-butenyl acrylate copolymer
(**resist** compn.)

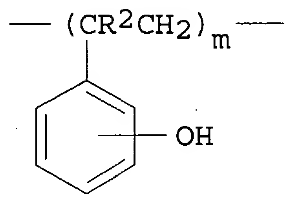
L37 ANSWER 9 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1996:520454 Document No. 125:154399 Radiation-sensitive **resist** composition containing 1-adamantyl-substituted vinylphenol component. Matsuno, Shugo; Sugimoto, Tatsuya; Abe, Nobunori;

Tanaka, Hideyuki (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 08137107 A2 **19960531** Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-301558 19941110.

GI



I



II

AB The compn. contains a copolymer having an adamantyl-substituted component I, a phenolic component II, and [CR3(CO2R6)]n [R1-3 = H, (substituted) C1-4 alkyl, halo, CN, NO2, R4, R5 = H, (branched) C1-8 (substituted) alkyl, (substituted) alkenyl, (substituted) aryl, A = 1-adamantyl, R6 = acid-instable group; 0.05 .ltoreq. k .ltoreq. 0.95; 0.1 .ltoreq. l .ltoreq. 0.95; 0.05 .ltoreq. n .ltoreq. 0.6; k + m + n = 1] and a radiation-sensitive component which generates an acid by active radiation. The compn. showing high sensitivity, resoln., and etching resistance is useful for super-fine processing in manuf. of semiconductor devices.

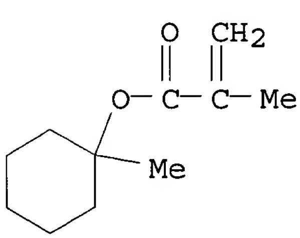
IT **178889-54-8DP**, reaction products with adamantyl bromoacetate
(radiation-sensitive **resist** compn. contg. 1-adamantyl-substituted vinylphenol component)

RN 178889-54-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

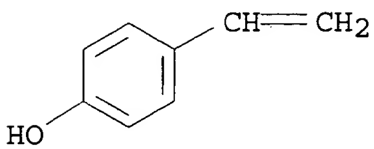
CRN 76392-14-8
CMF C11 H18 O2



CM 2

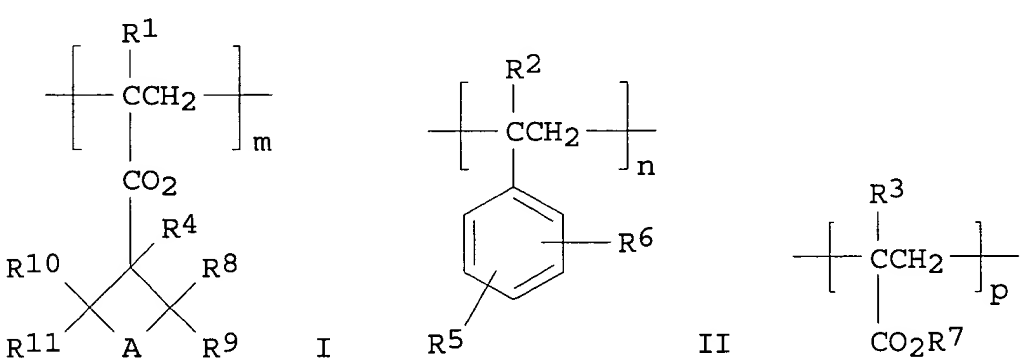
CRN 2628-17-3

CMF C8 H8 O



IC ICM G03F007-039
ICS G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST radiation sensitive **resist** pos working; adamantyl substituent radiation sensitive **resist**; semiconductor device fine processing **resist**
IT **Resists**
(radiation-sensitive, radiation-sensitive **resist** compn. contg. 1-adamantyl-substituted vinylphenol component)
IT 155040-27-0DP, reaction products with adamantyl bromoacetate
178177-89-4DP, 4-Hydroxystyrene-3-methyl-2-butenyl methacrylate copolymer, reaction products with adamantyl bromoacetate
178889-54-8DP, reaction products with adamantyl bromoacetate
180273-21-6DP, reaction products with hydroxy-contg. acrylic polymers
(radiation-sensitive **resist** compn. contg. 1-adamantyl-substituted vinylphenol component)

L37 ANSWER 10 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1996:443720 Document No. 125:100187 Radiation-sensitive **resist** composition. Matsuno, Shugo; Abe, Nobunori; Wada, Yasumasa (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 08101509 A2 **19960416** Heisei, 9 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1994-261054 19940930.
GI



I II III

AB The title **resist** compn. contains a radiation-sensitive component which generates an acid by irradn. with activated radiation and a polymer having structural units I, II, and III [R1-3 = H, C1-4 (substituted) alkyl, halo, cyano, nitro; R4 = linear, branched, or cyclic C1-8 (substituted) alkyl, (substituted) alkenyl; R5, R6 = H, halo, nitro, cyano, OH, CO2H, linear-, branched-, or cyclic C1-8 (substituted) alkyl, linear-, branched-, or cyclic C1-8 (substituted) alkoxy, C6-12 (substituted) aryl, C7-14 (substituted) aralkyl; R7 = linear-, branched-, or cyclic C1-8 (substituted) alkyl, linear-, branched-, or cyclic C1-8 (substituted) alkenyl; R8-11 = H, halo, C1-4 (substituted) alkyl; .gtoreq.1 of R8-11 is H; A = single bond, divalent org. group which may be substituted; m + n + p = 1, 0 < m .ltoreq. 1, 0 .ltoreq. n < 1, 0 .ltoreq. p < 1]. The **resist** is applicable for patterning of semiconductor devices. A **resist** comprising poly(1-methylcyclohexyl methacrylate) and Ph3S+.CF3SO3- showed high sensitivity and gave a submicron pos. pattern by using excimer laser.

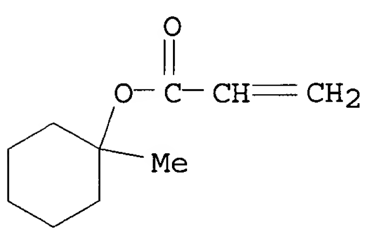
IT **178889-48-0P 178889-50-4P 178889-54-8P**
(radiation-sensitive **resist** compn.)

RN 178889-48-0 HCAPLUS

CN 2-Propenoic acid, 1-methylcyclohexyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 178889-47-9
CMF C10 H16 O2



CM 2

CRN 100-42-5
CMF C8 H8

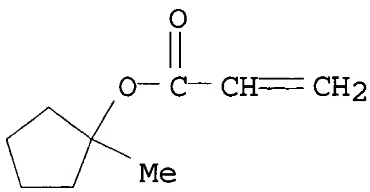
$H_2C{=}CH-Ph$

RN 178889-50-4 HCAPLUS

CN 2-Propenoic acid, 1-methylcyclopentyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

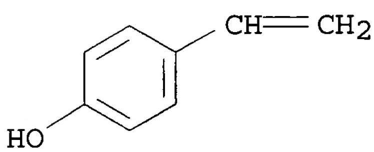
CM 1

CRN 178889-49-1
CMF C9 H14 O2



CM 2

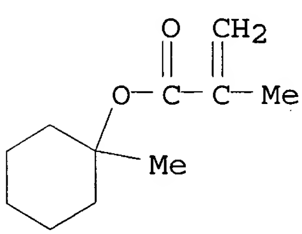
CRN 2628-17-3
CMF C8 H8 O



RN 178889-54-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

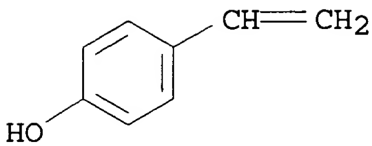
CM 1

CRN 76392-14-8
CMF C11 H18 O2



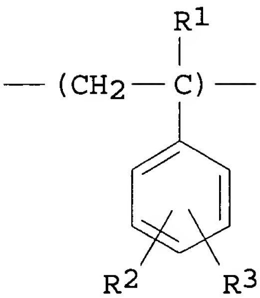
CM 2

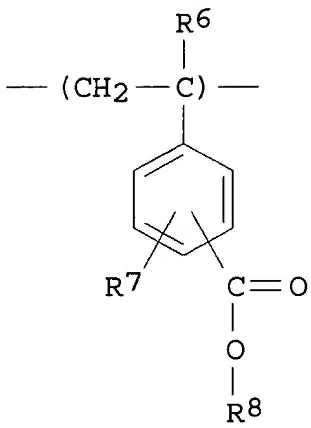
CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST radiation sensitive **resist** compn; cycloalkyl arylate polymer **resist**; acid generating compd **resist**; semiconductor device **resist** radiation sensitive
IT Semiconductor devices
(patterning; radiation-sensitive **resist** compn. for)
IT **Resists**
(radiation-sensitive **resist** compn.)
IT 66003-78-9, Triphenylsulfonium triflate
(acid generator; radiation-sensitive **resist** compn.)
IT 120763-30-6P, 1-Methylcyclohexyl methacrylate homopolymer
178889-46-8P **178889-48-0P** **178889-50-4P**
178889-51-5P 178889-52-6P 178889-53-7P **178889-54-8P**
(radiation-sensitive **resist** compn.)

L37 ANSWER 11 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1995:801746 Document No. 124:160397 **Resist** compositions with excellent sensitivity, resolution, etching-resistance, and storage-stability and **resist** pattern formation. Oie, Masayuki; Abe, Nobunori; Tanaka, Hideyuki; Oikawa, Akira; Myata, Shuichi (Nippon Zeon Co, Japan; Fujitsu Ltd). Jpn. Kokai Tokkyo Koho JP 07181680 A2 **19950721** Heisei, 28 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-303235 19941111. PRIORITY: JP 1993-305935 19931111.
GI


I


II

AB The title compns. comprise photo-acid generators, polymers capable of becoming alkali-sol. upon reacting with the photo-acids, and phenolic compds. The polymers contain structural repeating units, I [R1, R2 = H, halo, CN, C1-5 alkyl; R3 = acetal, carbonate, OR9; R9 = CR10R11R12, CR13R14OR15; R10-15 = alkyl, alkenyl, aryl, aralkyl], CH:CR4(CO2R5) [R4 = H, halo, CN, C1-5 alkyl; R5 = CR10R11R12, CR13R14OR15; R10-15 = alkyl, alkenyl, aryl, aralkyl], and/or II [R6, R7 = H, halo, CN, C1-5 alkyl; R8 = CR10R11R12, CR13R14OR15; R10-15 = alkyl, alkenyl, aryl, aralkyl].

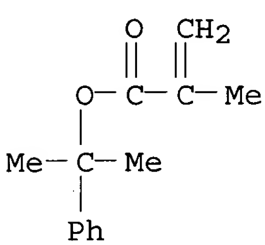
IT **166747-33-7**
(**resist** compns. comprising)

RN 166747-33-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

CRN 100-42-5
CMF C8 H8

$H_2C{=}CH{-}Ph$

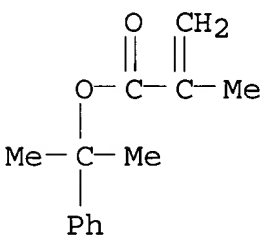
IC ICM G03F007-039
ICS G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST **photoresist** compn **resist** patterning
IT Electric circuits
(integrated, **resist** compns. with excellent sensitivity, resoln., etching-resistance, and storage-stability and **resist** pattern formation)
IT Lithography
(photo-, UV, submicron, **resist** compns. with excellent sensitivity, resoln., etching-resistance, and storage-stability and **resist** pattern formation)
IT **Resists**
(photo-, pos.-working, **resist** compns. with excellent sensitivity, resoln., etching-resistance, and storage-stability and **resist** pattern formation)
IT 28549-51-1 113924-01-9 123589-22-0 155040-27-0
166747-33-7 167953-83-5
(**resist** compns. comprising)
IT 51-28-5, 2,4-Dinitrophenol, uses 80-05-7, Bisphenol A, uses 80-09-1, Bisphenol S 87-66-1, Pyrogallol 108-73-6, Phloroglucinol 1470-79-7, 2,4,4'-Trihydroxybenzophenone 26983-52-8, Dihydroxybiphenyl 31127-54-5, 2,3,4,4'-Tetrahydroxybenzophenone 110726-28-8, Trisphenol PA 173718-27-9, Trisphenol HAP 173718-28-0, Trisphenol TC
(**resist** compns. comprising)

L37 ANSWER 12 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1995:620074 Document No. 124:131526 Positively working **resist** composition containing carboxamide compound. Oie, Masayuki; Tanaka, Hideyuki; Abe, Nobunori; Misawa, Mari (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 07092681 A2 **19950407** Heisei, 23 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-312672 19931118. PRIORITY: JP 1993-185472 19930629.
AB The compn. contains (A) an acid-generating compd. by active beam-irradn., (B) a polymer having a structure unit with an acid-unstable group to cleave and be alkali-sol. in the presence of an acid from A, and (C) a carboxamide compd., optionally contg. (D) an alkali-sol. phenolic resin. The compn. is useful for fine processing in manuf. of semiconductor devices. The compn. showed high sensitivity and gave high-resoln. images with etching resistance and storage stability.
IT **166747-33-7**
(pos.-working **resist** compn. contg. carboxamide compd. for manuf. of semiconductor device)

RN 166747-33-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

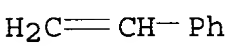
CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

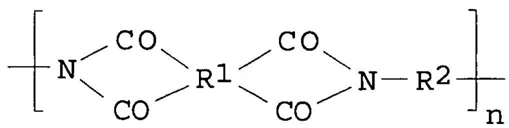
CRN 100-42-5
CMF C8 H8



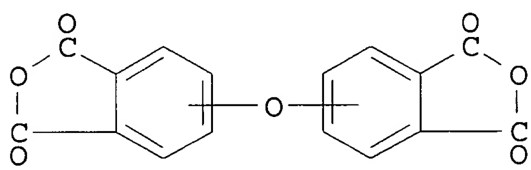
IC ICM G03F007-039
ICS G03F007-004; G03F007-023; G03F007-028; G03F007-033; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST pos working **photoresist** carboxamide; semiconductor device pos working **resist**
IT Electric circuits
(integrated, pos.-working **resist** compn. contg. carboxamide compd. for manuf. of semiconductor device)
IT **Resists**
(photo-, pos.-working **resist** compn. contg. carboxamide compd. for manuf. of semiconductor device)
IT 66003-78-9, Triphenylsulfonium triflate 130290-80-1
(photoacid generator; pos.-working **resist** compn. contg. carboxamide compd. for manuf. of semiconductor device)
IT 55-21-0, Benzamide 93-98-1, Benzanilide 613-93-4 620-71-3, Propionanilide 1129-50-6 15473-32-2, Capric acid anilide 19026-84-7 28549-51-1 28602-31-5, Toluamide 29733-85-5 41911-58-4, Hydroxybenzamide 84631-37-8 113924-01-9 123589-22-0 **166747-33-7** 169479-58-7 169479-59-8
(pos.-working **resist** compn. contg. carboxamide compd. for manuf. of semiconductor device)

L37 ANSWER 13 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1995:620073 Document No. 123:354646 Positively working **resist** composition containing sulfonamide compound. Oie, Masayuki; Tanaka, Hideyuki; Abe, Nobunori; Misawa, Mari (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 07092680 A2 **19950407** Heisei, 23 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-312671 19931118. PRIORITY: JP 1993-185471 19930629.

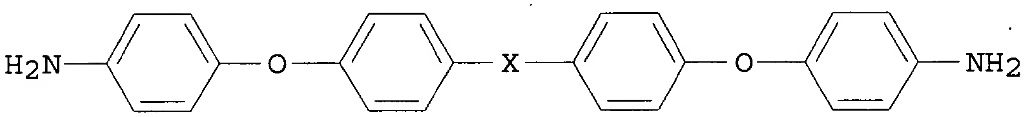
GI



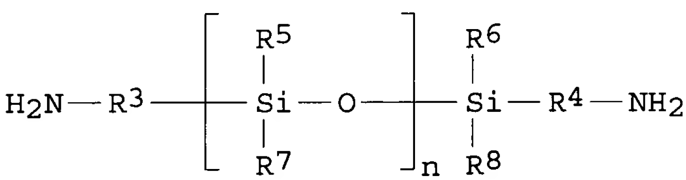
I



II



III



IV

AB The compn. contains (A) an acid-generating compd. by active beam-irradn., (B) a polymer having a structure unit with an acid-unstable group to cleave and be alkali-sol. in the presence of an acid from A, and (C) a sulfonamide compd., optionally contg. (D) an alkali-sol. phenolic resin. B may have a structure unit selected from CH2C(CO2R5)R4, I, or II [R1-2, R4, R6-7 = H, halo, CN, C1-5 (substituted) alkyl; R3 = (cyclic) acetal, carbonate, OR9; R5, R8-9 = CR10R11R12, C(OR15)R13R14; R10-15 = (substituted) (branched) alkyl, (cyclic) (substituted) alkyl, (substituted) alkenyl, (substituted) aryl, (substituted) aralkyl; R13 and R14 may be H]. The compn. is useful for fine processing in manuf. of semiconductor devices. The compn. showed high sensitivity and gave high-resoln.

images with etching resistance and storage stability.

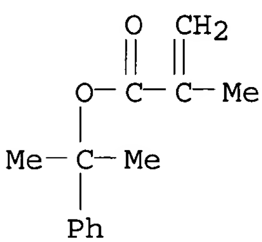
IT **166747-33-7**
(pos.-working **resist** compn. contg. sulfonamide compd. for manuf. of semiconductor device)

RN 166747-33-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

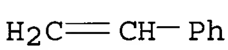
CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

CRN 100-42-5
CMF C8 H8



IC ICM G03F007-039
ICS G03F007-004; G03F007-023; G03F007-028; G03F007-033; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

ST pos working **photoresist** sulfonamide; semiconductor device pos working **resist**

IT Electric circuits
(integrated, pos.-working **resist** compn. contg. sulfonamide compd. for manuf. of semiconductor device)

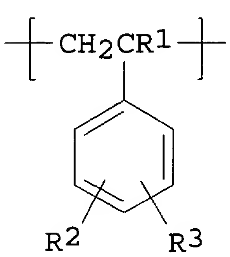
IT **Resists**
(photo-, pos.-working **resist** compn. contg. sulfonamide compd. for manuf. of semiconductor device)

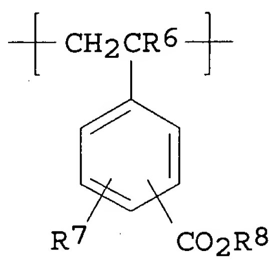
IT 66003-78-9, Triphenylsulfonium triflate 130290-80-1
(photoacid generator; pos.-working **resist** compn. contg. sulfonamide compd. for manuf. of semiconductor device)

IT 68-34-8 70-55-3, 4-Methylbenzenesulfonamide 98-10-2, Benzenesulfonamide 98-64-6, 4-Chlorobenzenesulfonamide 456-64-4, Trifluoromethanesulfonanilide 4284-51-9 5455-59-4,

2-Nitrobenzenesulfonamide 7454-47-9 28549-51-1 53715-52-9
60901-27-1 82407-05-4 113924-01-9 123589-22-0
166747-33-7
(pos.-working **resist** compn. contg. sulfonamide compd. for manuf. of semiconductor device)

L37 ANSWER 14 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1995:620072 Document No. 123:156435 Positively working **resist** composition containing carboxylic acid compound. Oie, Masayuki; Tanaka, Hideyuki; Abe, Nobunori; Misawa, Mari (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 07092679 A2 **19950407** Heisei, 23 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-312670 19931118. PRIORITY: JP 1993-185470 19930629.
GI

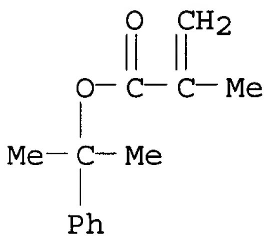

I


II

AB The compn. contains (A) an acid-generating compd. by active beam-irradn., (B) a polymer having a structure unit with an acid-unstable group to cleave and be alkali-sol. in the presence of an acid from A, and (C) a carboxylic acid compd., optionally contg. (D) an alkali-sol. phenolic resin. B may have a structure unit selected from CH2C(CO2R5)R4, I, or II [R1-2, R4, R6-7 = H, halo, CN, C1-5 (substituted) alkyl; R3 = (cyclic) acetal, carbonate, OR9; R5, R8-9 = CR10R11R12, C(OR15)R13R14; R10-15 = (substituted) (branched) alkyl, (cyclic) (substituted) alkyl, (substituted) alkenyl, (substituted) aryl, (substituted) aralkyl; R13 and R14 may be H]. The compn. is useful for fine processing in manuf. of semiconductor devices. The compn. showed high sensitivity and gave high-resoln. images with etching resistance and storage stability.
IT **166747-33-7**
(pos.-working **resist** compn. contg. carboxylic acid compd. form manuf. of semiconductor device)
RN 166747-33-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

CRN 100-42-5
CMF C8 H8

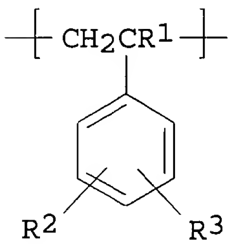
$H_2C{=}CH{-}Ph$

IC ICM G03F007-039
ICS G03F007-004; G03F007-023; G03F007-028; G03F007-033; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST pos working **resist** photo carboxylic acid; semiconductor device pos working **resist**
IT Electric circuits
(integrated, pos.-working **resist** compn. contg. carboxylic acid compd. form manuf. of semiconductor device)
IT **Resists**
(photo-, pos.-working **resist** compn. contg. carboxylic acid compd. form manuf. of semiconductor device)
IT 66003-78-9, Triphenylsulfonium triflate 130290-80-1
(photoacid generator; pos.-working **resist** compn. contg. carboxylic acid compd. form manuf. of semiconductor device)
IT 65-85-0, Benzoic acid, uses 76-05-1, uses 85-44-9, 1,3-Isobenzofurandione 100-09-4 108-30-5, Succinic anhydride, uses 110-94-1, Pentanedioic acid 144-62-7, Ethanedioic acid, uses 372-09-8, Cyanoacetic acid 482-05-3, [1,1'-Biphenyl]-2,2'-dicarboxylic acid 516-05-2, Methylmalonic acid 1007-01-8, Bicyclo[2.2.1]heptane-2-acetic acid 2170-03-8, Itaconic anhydride 25567-10-6, Toluic acid 28549-51-1 42862-36-2, Adamantanecarboxylic acid 113924-01-9 123589-22-0 **166747-33-7**
(pos.-working **resist** compn. contg. carboxylic acid compd. form manuf. of semiconductor device)

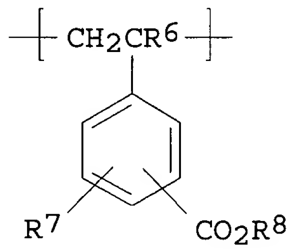
L37 ANSWER 15 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1995:620071 Document No. 124:41401 Positively working **resist** composition containing amino compound. Oie, Masayuki; Tanaka, Hideyuki; Abe, Nobunori; Misawa, Mari (Nippon Zeon Co, Japan). Jpn.

Kokai Tokkyo Koho JP 07092678 A2 **19950407** Heisei, 23 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-312669 19931118.
PRIORITY: JP 1993-185469 19930629.

GI



I



II

AB The compn. contains (A) an acid-generating compd. by active beam-irradn., (B) a polymer having a structure unit with an acid-unstable group to cleave and be alkali-sol. in the presence of an acid from A, and (C) an amino compd., optionally contg. (D) an alkali-sol. phenolic resin. B may have a structure unit selected from CH2C(CO2R5)R4, I, or II [R1-2, R4, R6-7 = H, halo, CN, C1-5 (substituted) alkyl; R3 = (cyclic) acetal, carbonate, OR9; R5, R8-9 = CR10R11R12, C(OR15)R13R14; R10-15 = (substituted) (branched) alkyl, (cyclic) (substituted) alkyl, (substituted) alkenyl, (substituted) aryl, (substituted) aralkyl; R13 and R14 may be H]. The compn. is useful for fine processing in manuf. of semiconductor devices. The compn. showed high sensitivity and gave high-resoln. images with etching resistance and storage stability.

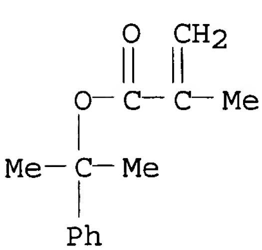
IT **166747-33-7**
(pos.-working **resist** compn. contg. amino compd. for manuf. of semiconductor device)

RN 166747-33-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 54554-17-5
CMF C13 H16 O2



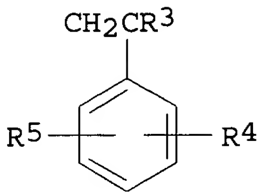
CM 2

CRN 100-42-5
CMF C8 H8

$H_2C{=}CH{-}Ph$

IC ICM G03F007-039
ICS G03F007-004; G03F007-023; G03F007-028; G03F007-033; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST pos working **resist** photo amino; semiconductor device pos working **resist**
IT Electric circuits
(integrated, pos.-working **resist** compn. contg. amino compd. for manuf. of semiconductor device)
IT **Resists**
(photo-, pos.-working **resist** compn. contg. amino compd. for manuf. of semiconductor device)
IT 66003-78-9, Triphenylsulfonium triflate 130290-80-1
(photoacid generator; pos.-working **resist** compn. contg. amino compd. for manuf. of semiconductor device)
IT 62-53-3, Benzenamine, uses 100-46-9, Benzylamine, uses 111-26-2, 1-Hexanamine 124-09-4, 1,6-Hexanediamine, uses 136-95-8, 2-Benzothiazolamine 142-84-7 143-27-1, Cetylamine 373-44-4, 1,8-Octanediamine 26915-12-8, Toluidine 27134-26-5, Chloroaniline 28549-51-1 29385-37-3, Aminothiazole 57951-36-7, Dimethylaminopyridine 113924-01-9 123589-22-0 **166747-33-7**
(pos.-working **resist** compn. contg. amino compd. for manuf. of semiconductor device)

L37 ANSWER 16 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1995:339558 Document No. 122:174456 **Resist** compositions. Oie, Masayuki; Abe, Nobunori; Tanaka, Hideyuki (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 06289608 A2 **19941018** Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1993-97139 19930330.
GI



II

AB The title **resist** compns. contain a copolymer having repeating units CH2CR1CO2R2 [I; R1 = H, (substituted) C1-5 alkyl, halo, CN; R2 = org. group having tert-C atom linking to the O] and II [R3 = H, (substituted) C1-5 alkyl, halo, CN; R4, R5 = H, OH, halo, CO2H, (substituted) C1-5 alkyl, (substituted) C1-12 alkoxy, (substituted) C6-12 aryl, (substituted) C7-14 aralkyl] and a compd. which can form an acid by active ray irradn. A **resist** comprising tert-Bu methacrylate-styrene copolymer and 1,2-naphthoquinonediazido-4-sulfonic acid ester of bisphenol A showed high photosensitivity and good storage stability and gave high resoln. patterns with good profile and etching resistance.

IT **91227-16-6**

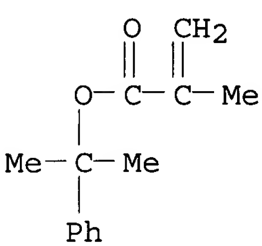
(**resist** compn. contg. acrylate-styrene copolymer and acid-generating compd.)

RN 91227-16-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with (1-methylethenyl)benzene (9CI) (CA INDEX NAME)

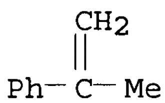
CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

CRN 98-83-9
CMF C9 H10



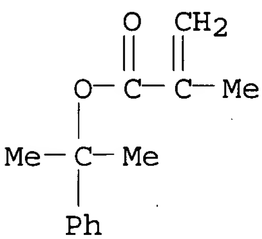
IC ICM G03F007-023
ICS G03F007-028; G03F007-033; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST acid generating compd **resist**; acrylate styrene copolymer **resist**
IT **Resists**
(radiation-sensitive, **resist** compn. contg. acrylate-styrene copolymer and acid-generating compd.)
IT 79-94-7, Tetrabromobisphenol A 640-60-8, Phenyl p-toluenesulfonate 66003-78-9, Triphenylsulfonium triflate 135668-83-6 136958-90-2 145538-13-2 161445-13-2 161445-14-3
(**resist** compn. contg. acrylate-styrene copolymer and acid-generating compd.)
IT 26702-86-3, tert-Butyl methacrylate-styrene copolymer 27812-47-1, tert-Butyl acrylate-styrene copolymer **91227-16-6** 155040-27-0 161234-12-4 161406-76-4
(**resist** compn. contg. acrylate-styrene copolymer and acid-generating compd.)

L37 ANSWER 17 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1990:45458 Document No. 112:45458 Copolymer approach to design of sensitive deep-UV **resist** systems with high thermal stability and dry etch resistance. Ito, Hiroshi; Ueda, Mitsuru; Ebina, Mayumi (Almaden Res. Center, IBM Res. Div., San Jose, CA, 95120-6099, USA). ACS Symposium Series, 412(Polym. Microlithogr.), 57-73 (English) **1989**. CODEN: ACSMC8. ISSN: 0097-6156.
AB A sensitive deep UV **resist** was designed by copolymg. .alpha.,.alpha.-dimethylbenzyl methacrylate with .alpha.-methylstryrene by radical initiation. The electron-rich .alpha.-methylstyrene lacks self-propagation and tends to undergo alternating copolymn. with electron-poor monomers such as methacrylates, esp. at high feed ratios. Intramol. anhydride formation that occurs upon heating of certain polymethacrylates and poly(methacrylic acid) is suppressed in such alternating copolymers. Thus, a high glass transition temp. of 210.degree. is obsd. for the 1:1 copolymer after deesterification. When mixed with an onium salt photochem. acid generator, the dimethylbenzyl ester moiety provides a high **resist** sensitivity and acid-catalyzed polarity changes. The methacrylate units incorporated in the polymer chain give excellent UV transmission, whereas the .alpha.-methylstyrene units provide good dry etch resistance and high thermal stability.
IT **91227-16-6**, .alpha.,.alpha.-Dimethylbenzyl methacrylate-.alpha.-methylstryrene polymer
(for deep-UV **resist** systems with high thermal stability and dry etch resistance)

RN 91227-16-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with (1-methylethenyl)benzene (9CI) (CA INDEX NAME)

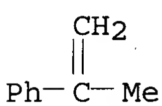
CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

CRN 98-83-9
CMF C9 H10



CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35
ST deep UV **resist** polymer
IT **Resists**
(photo-, deep-UV, copolymer use in high thermal stability and dry etch resistance)
IT 57840-38-7, Triphenylsulfonium hexafluoroantimonate
(deep-UV **photoresist** system contg. dimethylbenzyl methacrylate-methylstyrene polymer and, with high thermal stability and dry etch resistance)
IT **91227-16-6**, .alpha.,.alpha.-Dimethylbenzyl methacrylate-.alpha.-methylstryrene polymer
(for deep-UV **resist** systems with high thermal stability and dry etch resistance)

L37 ANSWER 18 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1989:415209 Document No. 111:15209 A copolymer approach to the design of sensitive deep UV **resist** systems with high thermal stability and dry etch resistance. Ito, Hiroshi; Ueda, Mitsuru; Ebina, Mayumi (Almaden Res. Cent., IBM Res. Div., San Jose, CA,

95120-6099, USA). Polymeric Materials Science and Engineering, 60, 142-6 (English) **1989**. CODEN: PMSEDG. ISSN: 0743-0515.

AB Sensitive deep UV **resist** was prepd. by copolymg. .alpha.,.alpha.-dimethylbenzyl methacrylate (I) with .alpha.-methylstyrene (II). The **resist** is so designed that each component carries its own functions. The methacrylate unit in the polymer chain provides good UV transmission to allow the triphenylsulfonium chromophore to absorb the deep UV light. The .alpha.,.alpha.-dimethylbenzyl ester moiety provides facile acidolysis and therefore a high sensitivity as well as a polarity change for the dual tone imaging. The II unit in the polymer chain offers dry etch durability and high thermal stability in conjunction with the alternating nature. The sulfonium salt generates a strong Broensted acid upon irradn. with the sulfonium cation absorbing the deep UV light and with the gegen anion detg. acid strength thereby contributing to the **resist** sensitivity. If a higher UV transmission is desired, alkyl methacrylates such as tert-Bu methacrylate could be incorporated in the place of I at the expense of sensitivity.

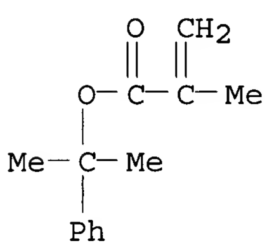
IT **91227-16-6**
(deep-UV **resist** system based on, with high thermal stability and dry etch resistance)

RN 91227-16-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer with (1-methylethenyl)benzene (9CI) (CA INDEX NAME)

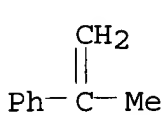
CM 1

CRN 54554-17-5
CMF C13 H16 O2



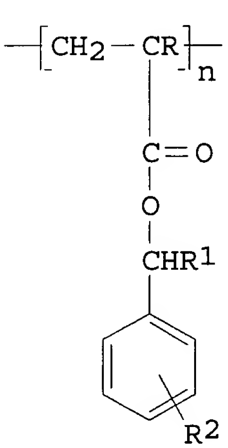
CM 2

CRN 98-83-9
CMF C9 H10

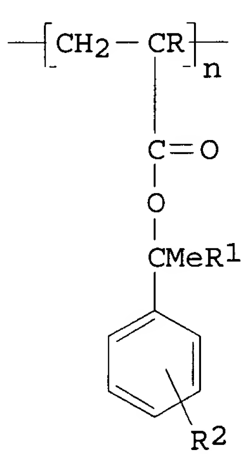


CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST deep UV **resist** polymer system; **photoresist** deep UV thermal stability; dry etch resistant deep UV **resist**
IT **Resists**
(photo-, deep-UV, dimethylbenzyl methacrylate-methylstyrene polymer as)
IT **91227-16-6**
(deep-UV **resist** system based on, with high thermal stability and dry etch resistance)

L37 ANSWER 19 OF 19 HCAPLUS COPYRIGHT 2002 ACS
1984:520487 Document No. 101:120487 Radiation-sensitive **resists**. (Hitachi, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 58068743 A2 **19830423** Showa, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1981-167173 19811021.
GI



I



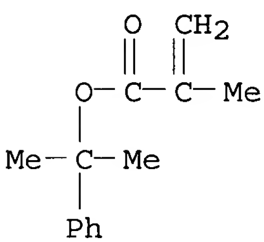
II

AB Electron-beam-, x-ray-, ion-beam-sensitive pos.-type **resists** are based on an org. polymer I [R = Me, Et, Pr, Ph; R1 = H, alkyl, aryl, aralkyl; R2 = H, alkyl, aryl, aralkyl, halo] or II [R = Me, Et, Pr, Ph; R1 = alkyl, aryl, alkyl; R2 = H, alkyl, aryl, aralkyl, halo, n = d.p.] capable of forming CO2H groups on irradn. with high energy radiation. The **resists** are useful in semiconductor devices, magnetic bubble memory devices, integrated circuit fabrication, etc. requiring fine pattern formation.
IT **91227-16-6**
(radiation **resists** from, for semiconductor device manuf.)
RN 91227-16-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methyl-1-phenylethyl ester, polymer

with (1-methylethenyl)benzene (9CI) (CA INDEX NAME)

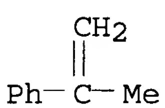
CM 1

CRN 54554-17-5
CMF C13 H16 O2



CM 2

CRN 98-83-9
CMF C9 H10



IC G03C001-72; C08F020-10
ICA C08F020-22
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76, 77
ST **resist** radiation semiconductor device
IT Semiconductor devices
(fabrication of, radiation **resists** for, from benzylstyrenecarboxylate polymers)
IT **Resists**
(radiation, pos.-type, contg. benzylstyrenecarboxylate polymers)
IT 25085-84-1 55993-86-7 **91227-16-6** 91227-17-7 91227-18-8
(radiation **resists** from, for semiconductor device manuf.)

=> d l38 1-6 cbib abs hitstr hitind

L38 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2002 ACS
2000:877009 Document No. 134:63886 Krypton fluoride excimer laser-sensitive positive-working **resist** composition.
Omori, Katsumi; Yukawa, Hirohito; Yamazaki, Akiyoshi; Tani, Kazuo;

Kinoshita, Yohei; Yamada, Tomotaka (Tokyo Ohka Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000347405 A2 **20001215**, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-154908 19990602.

AB The title compn. contains a styrene/acrylate copolymer and a photoacid generator, wherein the copolymer is prepd. from: (A) hydroxystyrene or hydroxy-.alpha.-Me styrene; (B) styrene; and (C) an acrylate of a cyclohexyl deriv. The compn. provides the large difference of the alkali soly. before and after the exposure.

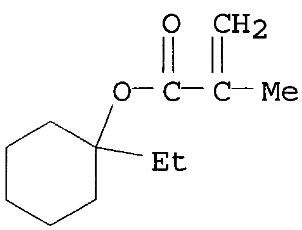
IT **313644-15-4P**, Hydroxystyrene-styrene-1-Ethylcyclohexyl methacrylate copolymer
(copolymer in excimer laser-sensitive pos.-working **resist** compn.)

RN 313644-15-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclohexyl ester, polymer with ethenylbenzene and ethenylphenol (9CI) (CA INDEX NAME)

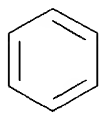
CM 1

CRN 274248-09-8
CMF C12 H20 O2



CM 2

CRN 31257-96-2
CMF C8 H8 O
CCI IDS



D1— OH

D1— CH═CH$_2$

CM 3

CRN 100-42-5
CMF C8 H8

H_2C═CH— Ph

IC ICM G03F007-039
ICS H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35
ST excimer laser sensitive pos **resist** compn
IT Light-sensitive materials
Photoresists
(krypton fluoride excimer laser-sensitive pos.-working **resist** compn.)
IT **313644-15-4P**, Hydroxystyrene-styrene-1-Ethylcyclohexyl methacrylate copolymer
(copolymer in excimer laser-sensitive pos.-working **resist** compn.)
IT 66003-76-7, Diphenyliodonium trifluoromethanesulfonate 194999-82-1
(photoacid generator in excimer laser-sensitive pos.-working **resist** compn.)

L38 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2002 ACS
2000:600540 Document No. 133:215450 Positive-working photosensitive composition containing silicone. Sakaguchi, Shinji (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000235264 A2 **20000829**, 49 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-143614 19990524. PRIORITY: JP 1998-354878 19981214.
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to a pos.-working photosensitive compn. contg.; (a) a water-insol. and alkali-sol. polymer having repeating unit I or II(X = -C=O, H, hydrocarbon, etc.; R'-''''' = OH, alkyl, cycloaralkyl, etc.; R0 = H, halo, hydrocarbon; r, s, t = 1-3 integer; u, v = 1, 2; l, m, n, q .gtoreq.0 integer; p>0 integer; R.alpha.-.gamma. = single bond, -(CH2)k-(Z.alpha.)-R.delta.; Z.alpha. = -COC-, -O-, -N(R.epsilon.)-; R.delta. = single bond, C1-12 alkylene; arylene, aralkyl; R.epsilon. = H, C1-10 alkyl; k = .gtoreq.0 integer; j = 0, 1); (b) a compd. generating an acid upon irradn. of actinic or radioactive ray; and (c) an polymer, which increases the soly. towards an alkali developer at the presence of an acid, having repeating unit -(C(R1)(R2)-C(R3)(R4-(G)f))a-, -(C(R5)(R6)-C(R7)(R8-(Q)g))b- (R1-3,5-7,9-11 = H, halo, alkyl, etc.; R4,9 =single bond, 2-5 valent specific aryl, amide group) and -(C(R9)(R10)-C(R11)(R12))c- and acid-sensitive group, and (d) a nitrogen contg. cyclic compd. and/or an aliph. amine having a carboxylic substituent. The compn. provides the high sensitivity and the high resoln. and is suitable for use in a semiconductor device prodn.

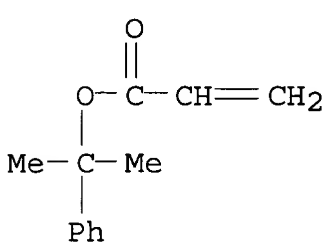
IT **289706-86-1**
(pos.-working photosensitive compn.)

RN 289706-86-1 HCAPLUS

CN 2-Propenoic acid, 1-methyl-1-phenylethyl ester, polymer with ethenylbenzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

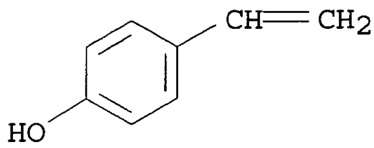
CM 1

CRN 67704-03-4
CMF C12 H14 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



CM 3

CRN 100-42-5
CMF C8 H8

$H_2C=CH-Ph$

IC ICM G03F007-075
ICS C08L083-06; G03F007-039; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
IT **Photoresists**
(pos.-working photosensitive compn. contg. silicone)
IT 109-12-6, 2-Aminopyrimidine 119-65-3, Isoquinoline 260-94-6, Acridine 504-29-0, 2-Aminopyridine 534-85-0, 2-Aminodiphenylamine 580-20-1, 7-Hydroxyquinoline 607-31-8, 4-Methoxyquinoline 611-64-3, 9-Methylacridine 620-08-6, 4-Methoxypyridine 670-95-1, 4-Phenylimidazole 822-36-6, 4-Methylimidazole 18123-20-1, 4-Hydroxyacridine 23687-25-4, 4-Aminoisoquinoline 31401-45-3, 4-Dimethylaminopyrimidine 36631-19-3, Triphenyl imidazole 177034-67-2 287925-54-6 287925-56-8 288620-13-3 288620-15-5 289706-73-6 289706-75-8 289706-76-9 289706-79-2 289706-80-5 289706-81-6 289706-82-7 289706-83-8 289706-84-9 289706-85-0 **289706-86-1** 289706-87-2 289706-88-3 289706-90-7
(pos.-working photosensitive compn.)

L38 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2002 ACS
2000:300838 Document No. 132:315856 Polymer, **chemically amplification resist** material, and pattern formation. Hatayama, Jun; Watanabe, Osamu; Takeda, Takanobu; Watanabe, Atsushi; Osawa, Yoichi; Ishihara, Toshinobu (Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000128930 A2 **20000509**, 32 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-309243 19981029.
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB An intramol. or intermol. crosslinked polymer having .gtoreq.1 repeating unit (CH2CR2)2R1, I, and II [R1 = O, N, S, (aryl-substituted) C1-20 alkylene or alkylidine, (alkyl-substituted) C6-20 arylene or arylidine, di- or tri-valent (hetero atom-contg.) group comprising the alkylene, the alkylidine, the arylidine or the arylene; R2 = H, (branched or cyclic) C1-10 alkyl; R3 = (branched or cyclic) C1-8 alkyl; m = 0-4] is claimed. The **resist** material contains the polymer, an org. solvent, and an acid generator. The pattern is formed according to the steps: (1) coating the polymer on a substrate, (2) heating and irradiating the material with a high energy ray with wavelength .ltoreq.300 nm or an electron-beam thorough a **photomask**, (3) optional heating, and (4) developing the material. The **resist** is sensitive to high energy ray, shows high sensitivity, resoln., and plasma etching resistance, and gives clear patterns.

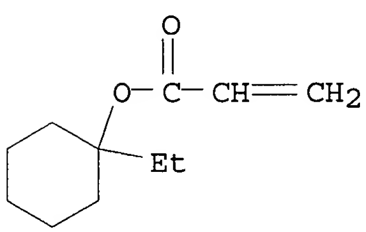
IT **266308-57-0P 266308-59-2P**
(radiation-sensitive **resist** compn. contg. crosslinked vinyl polymer)

RN 266308-57-0 HCAPLUS

CN 2-Propenoic acid, 1-ethylcyclohexyl ester, polymer with 4-ethenylphenol and 1,5-hexadiene (9CI) (CA INDEX NAME)

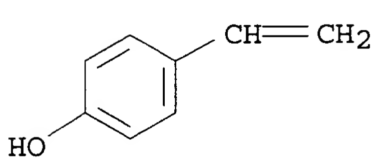
CM 1

CRN 251909-25-8
CMF C11 H18 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



CM 3

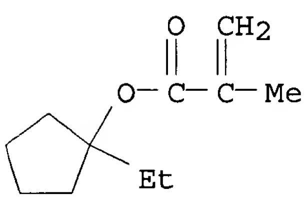
CRN 592-42-7
CMF C6 H10

$H_2C{=}CH{-}CH_2{-}CH_2{-}CH{=}CH_2$

RN 266308-59-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with 4-ethenylphenol and 1,5-hexadiene (9CI) (CA INDEX NAME)

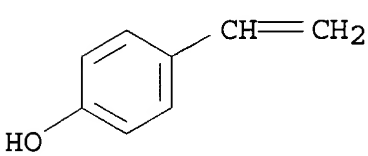
CM 1

CRN 266308-58-1
CMF C11 H18 O2



CM 2

CRN 2628-17-3
CMF C8 H8 O



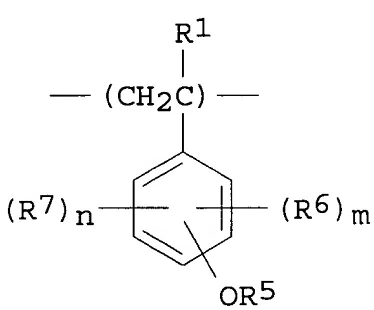
CM 3

CRN 592-42-7
CMF C6 H10

$H_2C{=}CH{-}CH_2{-}CH_2{-}CH{=}CH_2$

IC ICM C08F036-02
ICS C08F012-22; C08F012-34; C08F020-10; C08F020-20; C08F246-00; G03F007-039
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST radiation **resist** crosslinked vinyl polymer; acid generator **chem amplification resist**
IT **Resists**
(radiation-sensitive; radiation-sensitive **resist** compn. contg. crosslinked vinyl polymer)
IT 180801-55-2 214534-44-8 258342-00-6 266308-64-9
(acid generator; radiation-sensitive **resist** compn. contg. crosslinked vinyl polymer)
IT 157089-23-1 266308-63-8
(dissoln. inhibitor; radiation-sensitive **resist** compn. contg. crosslinked vinyl polymer)
IT 102-71-6, uses 109-73-9, Butylamine, uses 211919-60-7
(radiation-sensitive **resist** compn. contg. crosslinked vinyl polymer)
IT 266308-54-7P 266308-56-9P **266308-57-0P**
266308-59-2P 266308-61-6P 266308-62-7P
(radiation-sensitive **resist** compn. contg. crosslinked vinyl polymer)

L38 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2002 ACS
1999:658546 Document No. 131:293308 Positively working **photoresist** composition containing acid-generating compound. Aogo, Toshiaki; Mizutani, Kazuyoshi; Tan, Shiro (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 11282163 A2 **19991015** Heisei, 53 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-79458 19980326.
GI



I

AB The material contains a compd. generating acid under exposure to active lights or radioactive rays and a resin with repeating units I and [CH2C(R1)CO2CR2R3R4] [R1 = H, Me; R2, R3 = H, (substituted)

alkyl, (substituted) aryl; R4 = cycloalkyl, alkenyl, alkynyl, aralkyl, aryl, where they may be substituted; R5 = H, CR8R9R10, CR11R12OR13; R8-12 = H, (substituted) alkyl, (substituted) cycloalkyl, (substituted) alkenyl, (substituted) alkynyl, (substituted) aryl; R13 = alkyl, cycloalkyl, aryl; R6, R7 = halo, OH, (substituted) alkyl, (substituted) aryl, (substituted) aralkyl, (substituted) alkoxy, (substituted) acyl, (substituted) acyloxy; two of each R2-4, R8-10, and R11-13 may form a ring; m, n = 0-3]. The material shows high sensitivity and improved resolving power and improved pattern profile because of no change of pattern shapes and sensitivity under exposure.

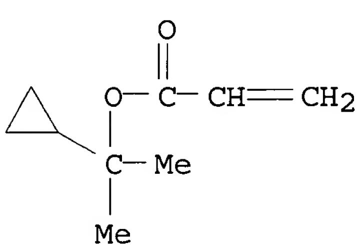
IT **246157-34-6 246157-36-8 246157-38-0**
246157-40-4 246157-41-5 246157-43-7
246157-45-9 246157-46-0
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)

RN 246157-34-6 HCAPLUS

CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

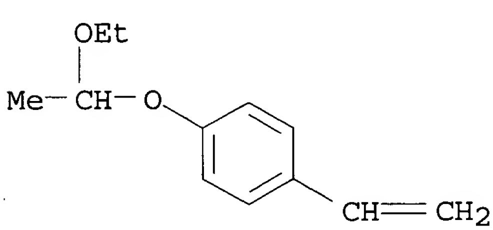
CM 1

CRN 246157-33-5
CMF C9 H14 O2



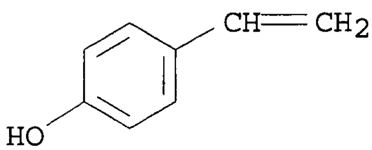
CM 2

CRN 157057-20-0
CMF C12 H16 O2



CM 3

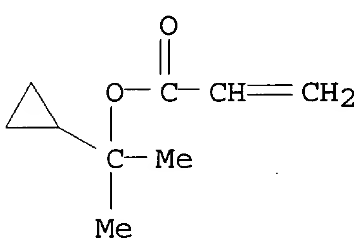
CRN 2628-17-3
CMF C8 H8 O



RN 246157-36-8 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 1-ethenyl-4-[1-(2-methylpropoxy)ethoxy]benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

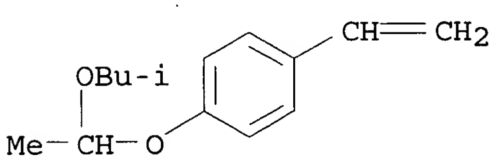
CM 1

CRN 246157-33-5
CMF C9 H14 O2



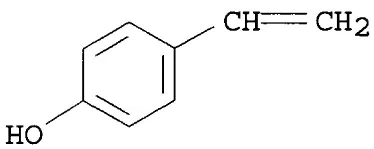
CM 2

CRN 192314-53-7
CMF C14 H20 O2



CM 3

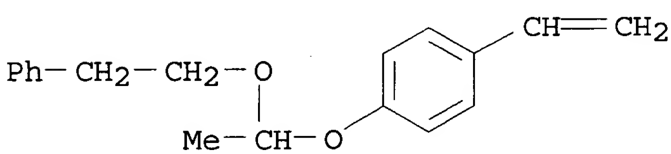
CRN 2628-17-3
CMF C8 H8 O



RN 246157-38-0 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 4-ethenylphenol and 1-ethenyl-4-[1-(2-phenylethoxy)ethoxy]benzene (9CI) (CA INDEX NAME)

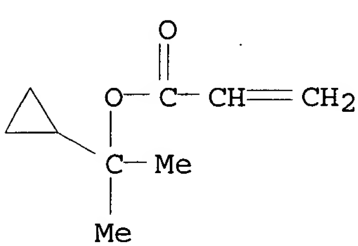
CM 1

CRN 246157-37-9
CMF C18 H20 O2



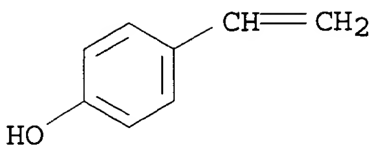
CM 2

CRN 246157-33-5
CMF C9 H14 O2



CM 3

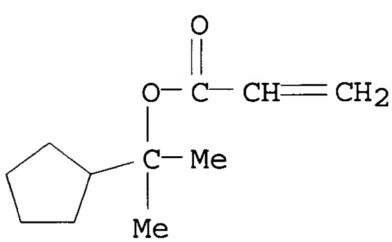
CRN 2628-17-3
CMF C8 H8 O



RN 246157-40-4 HCAPLUS
CN 2-Propenoic acid, 1-cyclopentyl-1-methylethyl ester, polymer with 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

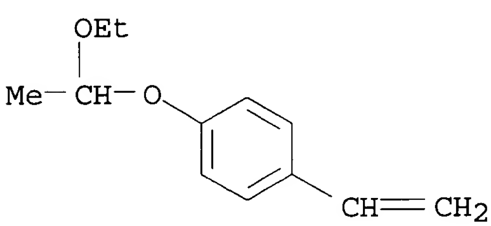
CM 1

CRN 246157-39-1
CMF C11 H18 O2



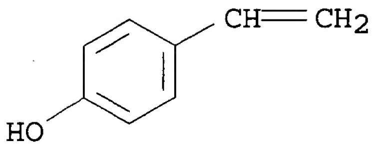
CM 2

CRN 157057-20-0
CMF C12 H16 O2



CM 3

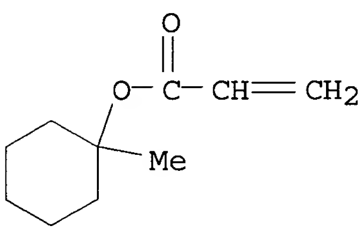
CRN 2628-17-3
CMF C8 H8 O



RN 246157-41-5 HCAPLUS
CN 2-Propenoic acid, 1-methylcyclohexyl ester, polymer with 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

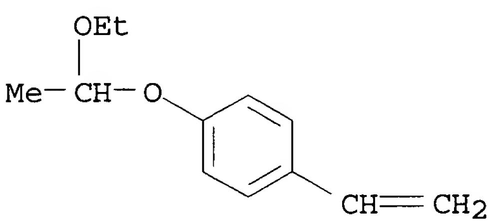
CM 1

CRN 178889-47-9
CMF C10 H16 O2



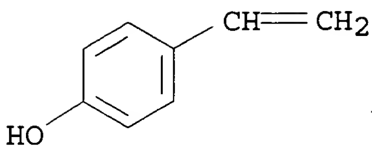
CM 2

CRN 157057-20-0
CMF C12 H16 O2



CM 3

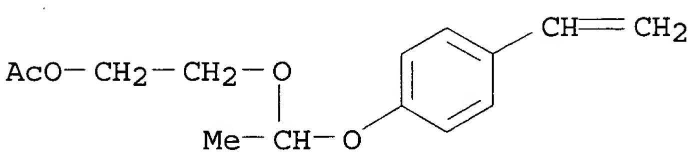
CRN 2628-17-3
CMF C8 H8 O



RN 246157-43-7 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-2-propenyl ester, polymer with 4-ethenylphenol and 2-[1-(4-ethenylphenoxy)ethoxy]ethyl acetate (9CI) (CA INDEX NAME)

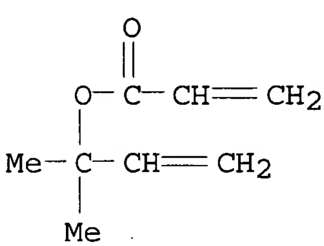
CM 1

CRN 246157-42-6
CMF C14 H18 O4



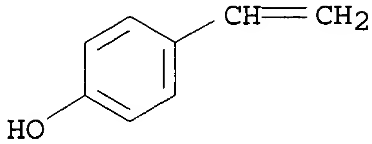
CM 2

CRN 120880-88-8
CMF C8 H12 O2



CM 3

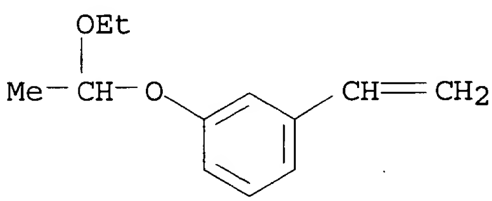
CRN 2628-17-3
CMF C8 H8 O



RN 246157-45-9 HCAPLUS
CN 2-Propenoic acid, 1-cyclopropyl-1-methylethyl ester, polymer with 1-ethenyl-3-(1-ethoxyethoxy)benzene and 3-ethenylphenol (9CI) (CA INDEX NAME)

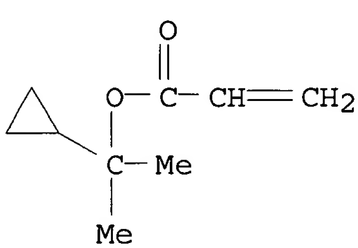
CM 1

CRN 246157-44-8
CMF C12 H16 O2



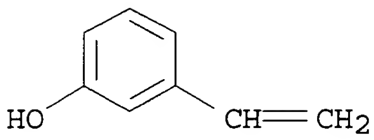
CM 2

CRN 246157-33-5
CMF C9 H14 O2



CM 3

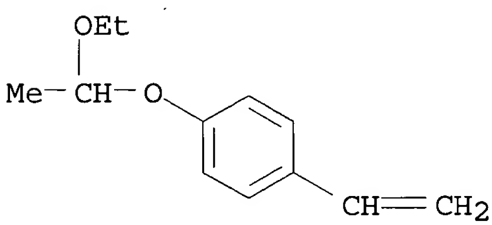
CRN 620-18-8
CMF C8 H8 O



RN 246157-46-0 HCAPLUS
CN 2-Propenoic acid, 1,1-dimethyl-2-propenyl ester, polymer with ethenylbenzene, 1-ethenyl-4-(1-ethoxyethoxy)benzene and 4-ethenylphenol (9CI) (CA INDEX NAME)

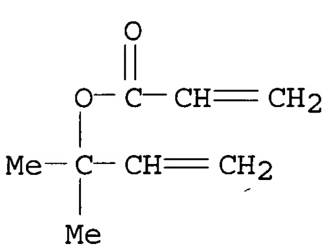
CM 1

CRN 157057-20-0
CMF C12 H16 O2



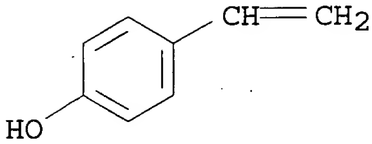
CM 2

CRN 120880-88-8
CMF C8 H12 O2



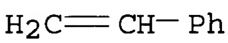
CM 3

CRN 2628-17-3
CMF C8 H8 O



CM 4

CRN 100-42-5
CMF C8 H8

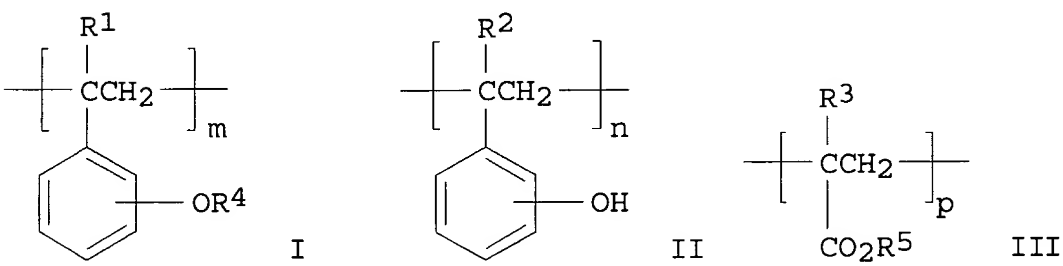


IC ICM G03F007-039
ICS C08F220-18; C08K005-00; C08L025-18; C08L031-02; C08L101-00; H01L021-027; C08F212-14
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST pos working **photoresist** acrylic hydroxystyrene polymer; acid generating agent pos working **photoresist**; resolving power pattern profile **photoresist**
IT Positive **photoresists**
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)
IT 144317-44-2 194999-85-4 197447-16-8 207464-07-1 240424-20-8 240424-21-9
(acid-generating agent; pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)
IT 115-18-4
(monomer from; pos.-working **photoresist** contg. acrylic hydroxystyrene polymer from)
IT 120880-88-8P
(monomer; pos.-working **photoresist** contg. acrylic hydroxystyrene polymer from)
IT 109-92-2DP, Ethyl vinyl ether, reaction product with hydrolyzed acetoxystyrene polymer 246157-32-4DP, hydrolyzed, reaction product with Et vinyl ether
(pos.-working **photoresist** contg. acrylic hydroxystyrene polymer and acid-generating agent with improved resolving power and pattern profile)
IT **246157-34-6 246157-36-8 246157-38-0 246157-40-4 246157-41-5 246157-43-7 246157-45-9 246157-46-0**
(pos.-working **photoresist** contg. acrylic hydroxystyrene

polymer and acid-generating agent with improved resolving power and pattern profile)

L38 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2002 ACS
1996:449241 Document No. 125:127787 Radiation-sensitive **resist** composition using novel copolymer. Matsuno, Shugo; Abe, Nobunori; Sugimoto, Tatsuya (Nippon Zeon Co, Japan). Jpn. Kokai Tokkyo Koho JP 08101508 A2 **19960416** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-261053 19940930.

GI



AB The title **resist** compn. contains a radiation-sensitive component which generates an acid by irradn. with activated radiation and a polymer having structural units I, II, and III [R1-3 = H, C1-4 (substituted) alkyl, halo, cyano, nitro; R4 = CO2CR6R7R8 or C(R9)(R10)CO2CR11R12R13 [R6-13 = H, linear, branched, or cyclic C1-8 (substituted) alkyl, (substituted) alkenyl; R6 and R7 or R11 and R12 may form a ring]; R5 = linear, branched, or cyclic C1-8 (substituted) alkyl, (substituted) alkenyl, (substituted) aryl; m + n + p = 1, 0 < m < 0.95, 0 < n < 0.95, 0.05 .ltoreq. p .ltoreq. 0.6, 0.1 .ltoreq. m/(m + n) < 1]. The **resist** is useful for patterning of semiconductor devices. A **resist** comprising 4-hydroxystyrene-tert-Bu methacrylate copolymer esterified with t-Bu bromoacetate, and Ph3S+.CF3SO3- showed high sensitivity and gave a submicron pos. pattern by using KrF excimer laser.

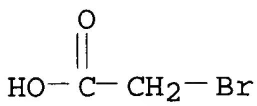
IT **179091-89-5P 179465-81-7P**
(radiation-sensitive **resist** compn.)

RN 179091-89-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol, bromoacetate (9CI) (CA INDEX NAME)

CM 1

CRN 79-08-3
CMF C2 H3 Br O2

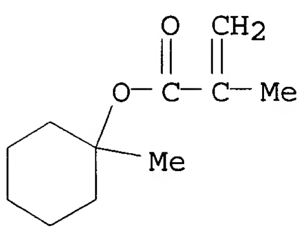


CM 2

CRN 178889-54-8
CMF (C11 H18 O2 . C8 H8 O)x
CCI PMS

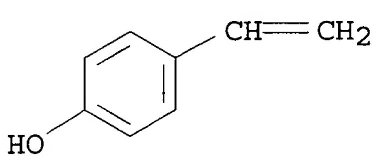
CM 3

CRN 76392-14-8
CMF C11 H18 O2



CM 4

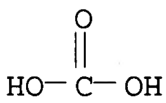
CRN 2628-17-3
CMF C8 H8 O



RN 179465-81-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol, carbonate (9CI) (CA INDEX NAME)

CM 1

CRN 463-79-6
CMF C H2 O3

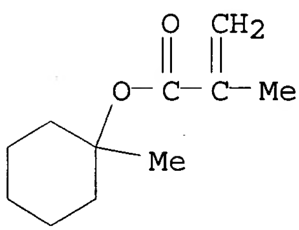


CM 2

CRN 178889-54-8
CMF (C11 H18 O2 . C8 H8 O)x
CCI PMS

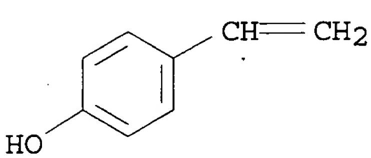
CM 3

CRN 76392-14-8
CMF C11 H18 O2



CM 4

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76
ST radiation sensitive **resist** compn; cycloalkyl acrylate polymer **resist**; styrene deriv copolymer **resist**; vinylphenol deriv copolymer **resist**; acrylate deriv copolymer **resist**; acid generating compd **resist**; semiconductor device **resist** radiation sensitive
IT Semiconductor devices

(patterning; radiation-sensitive **resist** compn. for)

IT **Resists**
(radiation-sensitive **resist** compn.)

IT 66003-78-9, Triphenylsulfonium triflate
(acid generator; radiation-sensitive **resist** compn.)

IT 179091-88-4P **179091-89-5P 179465-81-7P**
(radiation-sensitive **resist** compn.)

L38 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2002 ACS

1996:388353 Document No. 125:45136 **Resist** composition. Abe, Nobunori; Matsuno, Shugo; Tanaka, Hideyuki; Sugimoto, Tatsuya; Wada, Yasumasa (Nippon Zeon Co., Ltd., Japan). PCT Int. Appl. WO 9612216 A1 **19960425**, 91 pp. DESIGNATED STATES: W: KR, US; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1995-JP2114 19951013. PRIORITY: JP 1994-274457 19941013; JP 1995-21250 19950113; JP 1995-84729 19950316.

AB A **resist** compn. contains a polymer (a) having acid-cleavable groups and a compd. (b) capable of yielding an acid when irradiated with active rays of light, wherein the polymer (a) has groups contg. an allyloxy group having at least two substituents as the acid-cleavable group. Also claimed is another **resist** compn. contg. a resin binder (A), a compd. (B) capable of yielding an acid when irradiated with active rays of light, and a compd. (C) having an acid-cleavable group, wherein the compd. (C) has a group contg. an allyloxy group having at least one substituent as the acid-cleavable group. These compns. are excellent in sensitivity, resoln., heat resistance, and pattern formation.

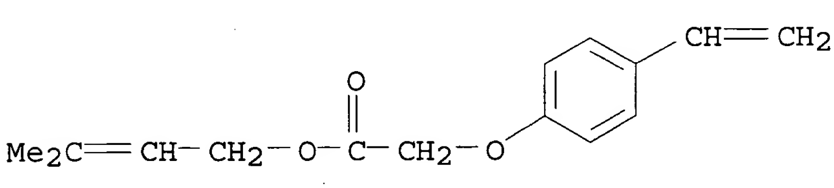
IT **178177-94-1P 178177-99-6P**
(**resist** compn. from)

RN 178177-94-1 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol and 3-methyl-2-butenyl (4-ethenylphenoxy)acetate (9CI) (CA INDEX NAME)

CM 1

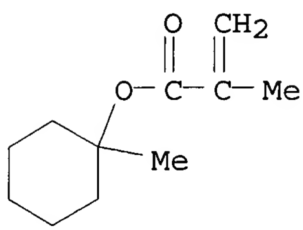
CRN 178177-90-7
CMF C15 H18 O3



CM 2

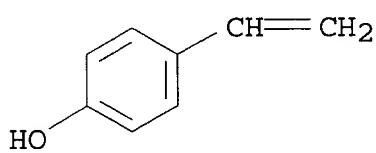
CRN 76392-14-8

CMF C11 H18 O2



CM 3

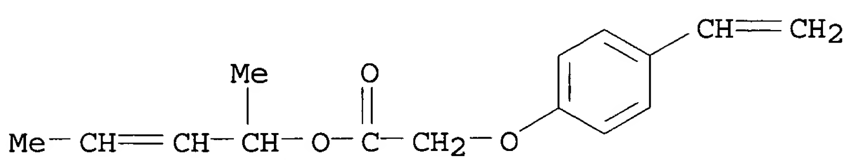
CRN 2628-17-3
CMF C8 H8 O



RN 178177-99-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1-methylcyclohexyl ester, polymer with 4-ethenylphenol and 1-methyl-2-butenyl (4-ethenylphenoxy)acetate (9CI) (CA INDEX NAME)

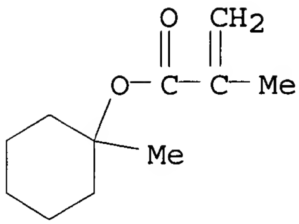
CM 1

CRN 178177-95-2
CMF C15 H18 O3



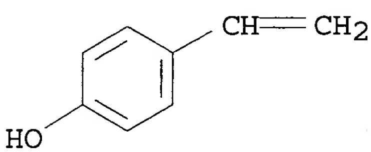
CM 2

CRN 76392-14-8
CMF C11 H18 O2



CM 3

CRN 2628-17-3
CMF C8 H8 O



IC ICM G03F007-039
ICS G03F007-004
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
ST **resist** compn acid cleavable polymer
IT **Resists**
(photo-, acid-cleavable polymer contg.)
IT 106-95-6DP, Allyl bromide, reaction product with hydrogenated polyvinylphenol 870-63-3DP, 1-Bromo-3-methyl-2-butene, reaction product with hydrogenated polyvinylphenol 59269-51-1DP, Polyvinylphenol, reaction product with allyloxy group-contg. compd. 66928-69-6DP, reaction product with hydrogenated polyvinylphenol 71215-43-5DP, 3-Methyl-2-butenyl bromoacetate, reaction product with hydrogenated polyvinylphenol 103723-94-0DP, reaction product with hydrogenated polyvinylphenol 178177-68-9P 178177-69-0P 178177-70-3P 178177-71-4P 178177-72-5P 178177-73-6P 178177-74-7P 178177-75-8P 178177-76-9P 178177-77-0P 178177-78-1P 178177-79-2P 178177-80-5P 178177-81-6P 178177-82-7DP, reaction product with hydrogenated polyvinylphenol 178177-83-8DP, reaction product with hydrogenated polyvinylphenol 178177-84-9DP, reaction product with hydrogenated polyvinylphenol 178177-85-0DP, reaction product with hydrogenated polyvinylphenol 178177-86-1DP, reaction product with hydrogenated polyvinylphenol 178177-87-2DP, reaction product with hydrogenated polyvinylphenol 178177-88-3DP, reaction product with hydrogenated polyvinylphenol 178177-89-4P, 4-Hydroxystyrene-3-methyl-2-butenyl methacrylate copolymer 178177-91-8P 178177-92-9P 178177-93-0P **178177-94-1P** 178177-96-3P 178177-97-4P 178177-98-5P